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DOMINION DENTAL JOURNAL

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EDITOR:
A. E. WEBSTER, M.D., D.D.S., L.D.S.
TORONTO, CANADA

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ORIGINAL COMMUNICATIONS

Arthur's System of Prevention of Decay of the Teeth

H. Hayes-Norman, D.D.S., Adelaide, Australia.

In the June issue of the Dominion Dental Journal, there appears a short editorial paragraph on the late Robert Arthur's system of "prevention of decay of the teeth." The paragraph refers, presumably, to my illustrated article which appeared in the Dental Science Journal of Australia, as, so far as I know, only one article on the subject of Arthur's system has appeared, and that one over my signature. It is probable, and possible, that my article may have been copied into other Australian journals and that, in the strenuous nature of my practice, I have missed the others.

There was one paragraph in an article on quite another subject, totally irrelevant to the subject now under discussion, written by Dr. Hinton, D.D.S., at Atlanta, Georgia, U.S.A., weeks, perhaps months, previously to the publication of my article, and it is a remarkable coincidence that the writer's paper should appear in the same issue as Dr. Hinton's in which he condemned Arthur's system in the most potent language the unadulterated English is capable of *when polite*. He wrote "Many of the older practitioners have remembered seeing the awful condition of *mouths so treated.*"

By a further coincidence, the same mail brought back to me, from the Editor of the Dental Science Journal of Australia, a statutory declaration of one of my ex-nurses' whose upper teeth were Arthurized from, and including, the mesial surface of the second molar on the right side, to the mesial surface of the second molar on the left; on the lower jaw from the distal surface of the first bicuspid to the mesial surface of the second molar, on *each* side. The four dens sapientae were extracted to render the distal surfaces of the second molars immune.

The writer's reply to Dr. Hinton contained the following paragraphs set in inverted commas, and may be of interest to readers of the Dominion Dental Journal, if not useful:

''These Arthurizings were performed for the eradication of contiguous caries, actively in progress A.D. 1909. Not only has she her own natural teeth, but they show no mutilation and are so regular and beautiful that they are generally thought to be artificial.''

Accompanying the statutory declaration was a certificate of an L.D.S., R.C.S., Eng., stating he had scrutinized the patient's teeth and was greatly impressed with the result attained. The name and address can be given if required. The statutory declaration and the testimonial were not obtained, nor sent, as advertisements, but for the private information of the Editor.

Dr. Hinton was asked to read the writer's article impartially and note the writer stated Arthurizing was eagerly seized upon as a panacea for the evil of approximal dental caries, but fell into disrepute in a few years by reason of a great number of practitioners thinking it an easy process requiring no special training. It became anathema to a great number of dentists by their ignorance of many varied conditions governing when and where not to do it.

Note.—I altered Dr. Arthur's title of his system to eradication and prevention of recurrence of dental caries.

If because I never on any condition devitalize teeth, but treat, cap the pulps and stop, (I dislike the term ''fill'') at one sitting of the patient, and others attempt it without special drugs and training, and in consequence very generally fail disastrously, would it be fair to declare the system in terms similar to that used by Dr. Hinton in re. Arthurizing?

I have Arthurized teeth that patients have carried to their last resting places after about 40 years of use. Proof of this can be furnished and if Dr. Hinton will appoint a referee, I will produce several patients whose ''teeth have been so treated'' many years, and, with me, say they bless Arthur. And so I say to my brother professionals *''audi alteram partem?''*

Enough said!

A further singular coincidence has occurred. On the very morning when the Dominion Dental Journal reached my hands, in walked to my surgery a young man, some of whose teeth had been Arthurized about 11 years ago. He went to the Great War and, being sent to a base hospital, I think with trench fever, he had his teeth and gums examined. Of course the cut and polished surfaces were at once noticed and, in answer to questions, he explained they had been Arthurized. Asked how long they had been done, he replied, "eight years;" the response of several dental surgeons was "that settles the question;" "yes, indeed," from the others.

It also happens that to-day is the anniversary of the statutory declaration made by the same patient before Mr. Caird J. Low, Justice of the Peace at Spalding, South Australia. The address of Mrs. G. F. March is Spalding, South Australia, to whom I ask any one requiring confirmation, or any further information, to write.

I am also posting you the statutory declaration of the ex-nurse referred to, whose teeth by Arthurizing were so treated. Her address is Mrs. Hallifax, Oxenbold St., Parkside, Adelaide, South Australia. She will reply with great pleasure for although she has left my service these six or seven years, she takes a keen interest in the dental profession and reads every dental journal she comes across.

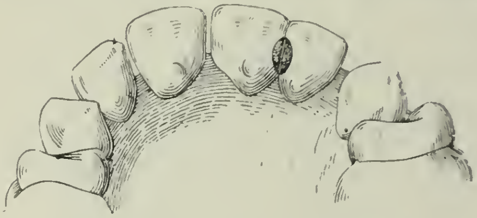
I am earnestly desirous of upholding the grateful memory of Arthur who, I consider, stood on the pinnacle of dentistry. To him, who was mainly the introducer, if not the inventor, of cohesive gold foil, and professor of dental surgery in the Philadelphia and Pennsylvania Dental Colleges, and corresponding member of the Odontological Society of Great Britain, we owe a great deal.

Dr. Arthur's book was first published in 1871, but, eight years afterwards, a second edition was issued. In the preface to the second edition he wrote, "A very extended application of the system of treating the teeth explained in this work has afforded the author ample opportunity of observing the results of the practice. These have given him no reason to change the views stated in the first edition; views which were the outgrowth indeed of a careful study of this special subject, extending over a number of years before they were offered in any form to the dental profession."

The writer is exceedingly sorry that the work of such a man should have been marred by conscienceless incompetents and that he should thus be forgotten by the profession he adorned.

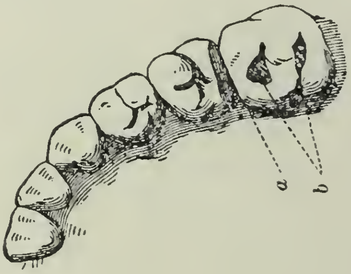
It brings to my mind Hamlet's irony of speedy effacement of the memory of his father's death. "Die two month ago and not forgotten? Then there is hope a great man's memory may outlive his life half a year, but by my lady he must build churches, or else shall he suffer, not thinking on." —Hamlet, Scene 2 of Act 3.

I am posting you two blocks illustrating two views of Arthur's system, No. 1 showing the contiguous decay by contact of two upper front teeth, while the same teeth with fortuitous spaces have no approximal caries.



Two teeth in contact decayed.
The same teeth sound on their other
sides owing to a natural space.

Block two shows the protection of the mesial surface of the 6th year molar by the removal of the *disto-lingual corner* only of the second temporary molar. Surely I need not plead in vain for that amount of preventive dentistry.



—One half of the upper teeth
at seven years of age;
a, temporary, separated from first
permanent molar, as explained;
b, defective places in enamel filled.

However, I hope the readers of the Dominion Dental Journal will not visualize the writer as purely an Arthurist, for Arthurizing is but a side issue of his conservative dentistry. I have been, in years gone by, a separationist, a contournist and then an extensionist, but as each system proved all too often ineffective in my hands, as well as in those of others, I am now eclectic, but my constant goal is the conservation of the dental pulp, if there is the slightest vitality in it, even to the lower third of the fang. I can truthfully say that for fifty years I have never accidentally nor intentionally devitalized a pulp, yet in common with all dentists I am called upon to treat teeth that have ached for many days, but I never extract a tooth because of pulpitis; nor have I ever had a patient return with a capped pulp aching and an alveolar abcess.

As the French say, with me the conservation of the pulp is "avoir le coeur du metier" and Arthurizing has often enabled me to score a victory.

*Note—The illustration excerpt from Arthur's work shows the cut reaching to cabial (buccal) side, which is excessive.

Health Centres of the Massachusetts-Halifax Health Commission

With Special Reference to Pre-school Age Dental Clinics and Nutrition Classes

B. Franklin Roger, M.D., Halifax, N.S.

Health center work in Halifax and Dartmouth came about as a direct result of the ship disaster occurring in Halifax harbor, December 6, 1917, when the Mont Blanc and the Imo collided. The Mont Blanc was loaded with trinitrotoluene, and a great explosion resulted, destroying the lives of 1,635 citizens and wrecking several thousand dwelling houses. Practically all buildings in the two communities were severely damaged, the property loss alone amounting to $30,000,000. Immediately after the news reached Boston, citizens of Massachusetts hurried physicians and nurses to Halifax with relief and supplies. A very generous contribution of funds and supplies followed, the collection reaching almost $750,000. In addition, several shiploads and several trainloads of supplies and the personal assistance of many citizens of Massachusetts were contributed. As soon as the governments of Canada and England could visualize the disaster, and make plans to give permanent relief, a commission was formed to handle relief in an official way and pay for all loss of life, limb and property.

With the formation of the government organization, and its establishment on the ground, outside philanthropy was no longer needed. A quarter of a million dollars of the Massachusetts money remained unexpended at this time, and at the suggestion of the committee in Massachusetts, Dr.

Victor G. Heiser studied local needs to determine how this large balance might be expended within the spirit of the donations, and for a need having some direct relation to the disaster. Dr. Heiser recommended that the money be employed in a campaign of public health education and preventive medicine, on condition that the government relief commission supplement it at the rate of $15,000 a year for a period of five years, and that the city of Halifax and the province of Nova Scotia each make contributions in facilities or money to the sum of $5,000 a year, the Massachusetts money to be apportioned as needed over approximately a five-year period. This was agreed to by all organizations, and a new commission, known as the Massachusetts-Halifax Health Commission, was created under a special act of the Nova Scotia legislature in May, 1919.

Dr. Heiser recommended the establishment of health centers as a part of the constructive educational health campaign. It has been my privilege to work out on the grounds the details of this supplemental health program in co-operation with the chief nurse of the commission, subject, of course, to the approval of the commission itself.

The child welfare clinics, the prenatal clinics, the ear, nose and throat services, the posture clinics, the venereal clinics and the tuberculosis services are organized very much along the lines now obtaining in the best health centers in parts of the United States. Some medical service is given and much public health counsel is offered both by physicians and by dentists, as well as by specially trained health nurses and nutrition workers.

Some new features, however, have been introduced in the pre-school age dental clinics, and in the nutrition clinics, that are worthy of special discussion at this time.

In making preliminary plans for a pre-school-age dental clinic, we first submitted our views to the Halifax Dental Society. The Dental Committee on Public Health of this society agreed to the suggestion that the proper place for, and the place most likely to give results in, preventive dentistry was in the preschool-age group, that is, up to 6 years. This committee agreed also with my suggestion that tooth nourishment should be featured out of all proportion to what has been done in health work in other places, and that prophylactic dentistry should be practised in co-operation with such an instructional service. While the matter was under discussion, a subcommittee secured approval of the Canadian

Dental Society, and a delegate secured approval of the American Dental Association.

It is the teaching plan of these health center preschool-age dental clinics to begin featuring tooth nourishment in the prenatal period. We try to make the expectant mother appreciate that unless she takes food from which sound bone and good teeth may be built, her baby will not grow a sound, strong, well-enameled set of temporary teeth, likely to remain sound and free from decay during the period of their natural use. We teach the mother to appreciate that the first set of teeth, even to the enamel, is pretty well finished when the child is born, although the teeth are under the gums in the jaw. We preach the use of liberal quantities of whole milk, the use of all leafy vegetables, even to raw cabbage, especially during the last six months of pregnancy. We aim to have the dentist in charge of this service advise with expectant mothers and the public health nurses, as well as the physician in this prenatal service and nursing period.

We begin dentistry with the baby at 6 months, whether bottle-fed or breast-fed, and try to control the health of the baby from then until he is 6 years of age, by taking him to the preschool-age dental clinic for guidance, and to impress on the mother essential food lessons. The dentist in the clinic, and the public health nurse subsequently in the home, constantly keep before the mother the thought that, in this important period, the second teeth are being built and enameled. We urge that, unless the child is given through these years also the kind of food from which sound teeth may be built, the permanent teeth may decay at any time after complete eruption or in the early teens. We teach continuously and constantly that unless the right kind of food is taken—chiefly mother's milk the first year, and modified milk or good whole milk later and as soon as possible, leafy vegetables, oatmeal porridge and whole wheat bread—one cannot lay the foundation for strong teeth or good lasting enamel. We emphasize in the clinic and through the health nurse and visiting housekeeper that tooth-feeding is of greater value than tooth-cleansing, but, at the same time, we teach oral hygiene.

The dentist teaches the use of the toothbrush in prophylactic work, and mechanically cleanses when necessary. With children coming to the clinic who have been improperly fed and whose mouths have been neglected, much repair work naturally is done, the sort dentists refer to as patchwork.

Silver may be deposited by precipitation, both in shallow cavities that have been previously cleaned, and as a coating to teeth losing their enamel, with the hope of preserving them and keeping their value in the development of the jaw. Fillings may otherwise be put in. Sinuses and diseased gums are treated.

The whole of this dental clinic service, however, is educational rather than reparative. We teach that tooth-feeding must begin with the expectant mother and must be continued during the prenatal period. One of our slogans is: "A sanitary mouth with good oral habits at 6 is likely to remain a clean, healthy mouth at 60." We are fortunate in having a woman dentist, Dr. Arabelle Mackenzie, who has had a year of postgraduate training in the Forsythe Clinic at Boston. She is tactful in handling children, and fits in well in coordinating her work with that of the medical staff. We have given her the title of pedodontist. She now has more than 300 babies and children less than 6 years of age coming to this clinic four times a year for dental advice. The nurse during the latter half of the first year visits the baby fortnightly, and once a month, or oftener if required, during the entire preschool period.

The school dentists of Halifax have already voluntarily made special report to the school authorities of the notable changes observed by them in children entering school during the last session, who have had from one year to eighteen months in the preschool dental clinic.

The nutrition services of the health center are organized much along the lines of Emerson's clinic in Boston, with some features of other clinics added. We have the additional advantage that the nurses', physicians', and consulting clinics, including the ear, nose, throat, posture and tuberculosis services, are operated from the same building. During summer months, adenoid and tonsil clinics are also conducted. In this way, we are able to do much as Dr. Wile does at the Mount Sinai clinic, viz., ask that handicaps be removed so that, as Dr. Emerson says, the child may be free to gain. Tonsils and adenoids must often be removed before a child may make great headway in nutrition class.

We are fortunate in the nutrition service in having Dr. F. W. Tidmarsh in charge, a man with an excellent overseas record and a period of study in Emerson's clinic. The physician is supported by the public health nurses and visiting housekeepers (nutrition workers), who aim to correct any home environment that may be detrimental to health. When nutrition problems are paramount, the visiting housekeeper does the bulk of the home teaching, the nurse going occasionally. The visiting housekeeper is trained to go into the home and teach the housewife the kind of food the child needs in order that it may gain. Not only does she explain the kind of food that is needed, but she goes with the mother into the shop or market and teaches her how to buy economically the kind of food the family needs, and the kind the particularly undernourished child needs.

The aim of the health center is to develop only one class of the undernourished of school age, recruiting this class chiefly from homes with open tuberculosis. This class is used for feature purposes and educational publicity. We recognize that the largest and most desirable places for nutrition classes must be, for some years at least, in the public schools. At present there are three such classes in Halifax public schools.

Our larger aim is to give nutrition advice to undernourished children of the preschool age. In that period, children are not so commonly 7, 10 or 15 per cent. underweight, but there is quite as much need of nutrition advice alone, or combined with the advice of a pedodontist, as in the older groups. With these classes we aim to prevent gross malnutrition.

I have more fully described the larger health program in other articles.** It will suffice here to have elaborated somewhat on the special services of preschool-age dentistry, a service hardly started in health circles, and on nutrition classes running parallel with them, an innovation in health work until recently largely limited to the school-age period.

One fully organized health center is now operating in the northern part of Halifax with a summer substation for weighing and measuring babies. A second health center, suited to the needs of a population of 8,000, is operating in Dartmouth.

The work of the first health center, when reviewed by representatives of the International Health Board of the Rockefeller Foundation, influenced them to "earmark" $200,000 for building a Dalhousie health center for the south end of Halifax. This new health center is being planned for the university as an integral teaching unit of the medical school, and will serve as an outpatient department to the group of hospitals now growing up in the immediate vicinity of the medical school. With health center service for the southern half of Halifax conducted by the medical faculty from a university building, with public health nurses on the staff, students of medicine will be given great clinical opportunities and will here for the first time be given ample opportunity to study domiciliary causes of diseases, and a chance to acquire a better fundamental groundwork for preventive medicine.

The general scheme of organization and the general plan of operation can perhaps be set forth best diagrammatically. It would be described about as follows: The Commission consists of nine men, three of them being members by virtue of their offices: the provincial health officer, the chairman of the Halifax City Health Board and the health officer of the town of Dartmouth. Two are appointed by the Halifax Relief Commission and four by the Massachusetts-Halifax Relief Commission of Boston. The commission acts under a special provincial law, and meets semi-monthly. Policies are determined by the commission, and work is directed through the executive officer and staff. The provincial and local health authorities are members of the commission for the purpose of co-ordinating the established work of each with the new work undertaken by the commission. It is the aim and object of the commission to do such lines of health work as should properly come under the local health officials in each community, and to work in the closest co-operation with all privately endowed philanthropic and charitable agencies, so that a minimum amount of overlapping will occur and waste will be avoided.

The public health nursing program is wholly constructive in character, and is a very large feature of the work. Each nurse is responsible for the entire public health program in the district assigned to her and for the health of every member of each family with whom she comes in contact. She seeks to remove as far as possible domiciliary causes of diseases, and to train and re-educate the family in right methods of living. Besides nursing is done in emergency only, or for family demonstrations. The Victorian Order of Nurses does the routine bedside work in homes of both communities, and gives general family instruction during such intervals.

The Treating and Filling of Deciduous Teeth

M. Evangeline Jordon, D.D.S., Los Angeles, Cal.

Read before the California State Dental Association, July 1, 1921

Conditions of life are such in this year of 1921 that if a parent wishes his child to have good teeth he must make a constant effort. That such parents are numbered by the thousands is a gratifying sign, but how many communities are prepared with operators who understand the correct handling of children under six years of age, the so-called runabout?

No longer are small children sent home with the advice that "nothing need be done as the teeth are soon to be lost," by the careful dentist who is thinking in terms of 1921 instead of 1900.

Prevention in all lines is the result of conditions revealed by war examinations and a strong light has been thrown upon caries of the teeth as the chief of childhood diseases. As the work in the school clinics has progressed, the need of dental work for the pre-school child has been emphasized. Unfortunately the profession is lagging behind the public in not preparing to handle this great problem—the hundreds of thousands of children between the ages of two and six years needing dental care. The colleges seem satisfied to go on in the same old groove sending out graduates to repair broken-down teeth, instead of the sensible painless course of building up perfect dentures that will be a credit to their practice and a priceless possession to the owners for the rest of their lives.

Effect of Food Upon the Teeth

In the prevention of caries, causes are being studied, and considerable work is being done in animal experiments. In studying my patients from month to month and year to year, from the first, the effect of food has been very apparent. Many babies fed upon artificial foods, overly sweetened and lacking in butter fat, present a picture of complete destruction of their teeth by the beginning of the third year, while children breast-fed may show the first sixteen teeth in perfect condition, with complete destruction of the second deciduous molars due to unwise early feeding. This relation is so apparent and the need of so large a lime content for building teeth and bones being necessary, it has been my practice for years to advise limiting the sugars and starches which unfit the appetite for the more necessary milk, dark breads, vegetables and fruits. Many starch eaters refuse milk which they seem unable to digest, but when the sugars are limited they will again take the milk.

In view of the fact that calcification of the fissures of the permanent molars is usually so incomplete that with the present-day diet, caries appears before they are fully erupted indicates that more thought must be given to the diet of the pregnant mother.

Two things should be undertaken in the future by thinking dentists. First, the establishing of a standard diet, balanced with relation to the developing teeth; and, second, more education on the evil effects of the *other childhood diseases* upon the teeth.

Need of Earlier Work

The dental hygienists are being trained in a number of colleges to educate the public in mouth hygiene, but there is a wide gap between this work and that of the regular dentist which must be filled by the profession. How many large cities outside of our own state have even one dentist devoting all of his time to the treating and filling of deciduous teeth. Not many, so far as I can learn. You may argue that the work is being done by the local dentist, and perhaps it is, but if what I see of it is a sample of his other work, I wouldn't trust him to work in my mouth. When I open a tooth with a chronic abscess and find the pulp chamber filled with cotton under a silver filling, I think of whited sepulchres. When even worse cases come in with one filling between two approximal cavities in deciduous molars with exposed pulps under the caries in each cavity, I long to urge every man who does a patch-up, hurry-up job of that sort to stop and think of the effect of such carelessness not only upon the developing bicuspids beneath, whose enamel organs may be partly destroyed, but of the whole delicately balanced human organization on which, perfectly handled, means a robust, healthy man, but which careless work in any line may condemn to be a feeble, sickly one. Possibly the perpetrators of such crimes are the men who have urgent business on the outside when papers on children's work are to be read, and who turn the page of the dental magazine when they are published.

I can not impress upon you the urgent need of specially trained children's dentists to fill this gap. The laity are ready; let the profession prepare. Early care of a child enables the operator to watch the development of the face and jaws and correct bad habits which may have such disastrous results in malocclusion. Rogers says, "it is well known that the growth and strength of the alveolar tissue depends upon proper function." Some minor conditions of malocclusion I class under home regulation and teach the patient along that line. Many city children need to be given exercises such as running with the lips tightly closed; and more important still, probably fifty per cent. of children from two to four should be biting hard foods to enlarge the anterior portions of the jaws so that the permanent incisors will have sufficient room. If there is no space between the lower incisors at the third year I advise biting on rubber. "Playing bull dog," the children call it. The father holds a piece of rubber cut from an inner tube, about three inches wide and six inches long, and the child tries to pull it away with his teeth. Many times because of small arches one of the upper teeth occludes lingually to the lower teeth and this can be corrected before the tooth is fully erupted by biting upon an orangewood wedge.

Filling Deciduous Teeth

At the first appointment I carefully examine the mouth of a child and chart every condition including caries, abscesses, malocclusion and the condition of the gingival margins and the tongue. I do not undertake a case unless I am to put the entire mouth in a healthy condition. It is a great mistake to treat or fill one or two teeth in a child's mouth and let the rest go. It leaves the impression upon the lay mind of the lack of importance of keeping the mouth healthy and the teeth properly functioning. At this time I give an estimate of the approximate time necessary for treatments and filling the teeth, which usually is several weeks and maybe longer, as well as the approximate cost of the work indicated. Before placing any fillings I always use cotton dipped in carbolized resin to pack the cavities and leave it in for two or three days. I usually put cotton into two or three of the largest cavities and at the next appointment the teeth will be separated and the gums will be pushed pack, giving a clear view of the cavity. Phenol is a good analgesic and carious deposits may be removed without pain. I may repeat this several times while treating diseased pulps and feel more certain of the health of the tissues left after removing the darkened part under the resin. Copper amalgam is the most practical material for use in the mouths of children. It will not kill the pulp as so many silver amalgam fillings do, and is also valuable for filling small cavities in the permanent molars under certain conditions to be mentioned later. In filling deciduous teeth, only the very small cavities do not need to be extended into compound cavities. The majority of fillings in the deciduous teeth must be cut with a dovetailed step, slightly under-cut. In shaping the cavity cut the step as wide and deep as possible to give strength. The most failures are the breaking of fillings between the step and the approximal portion. Many distal cavities in incisors and cuspids must have a step cut on the lingual surface. The shape of the deciduous molars, the poor enamel strength, and the large pulp with prominent horns make a more difficult problem of cavity preparation than most operators realize until they have observed their work for a period of several months. In filling approximal cavities, fill the mesial in the distal tooth, particularly the second deciduous molar *first,* and then build the distal cavity of the first molar against it, building a wide bridge to prevent food from packing between them. In this way, when the first molar is lost, the second presents a smooth surface to the erupting permanent tooth. If there is the slightest gap, food will crowd in and the acids formed by decomposition will wear away the fillings with great rapidity.

Treatment of Exposed Deciduous Pulps.

In the treatment of deciduous pulps every step must be taken with the same degree of care and precision that one would give to a difficult piece of porcelain restoration, if the desired result is to be obtained. This may deter many dentists, because it would seem a waste of time to spend it on temporary teeth which they consider "may soon be lost." This is one of the greatest mistakes of the profession, as the deciduous molars must last from nine to ten years and many show caries in the first few months. When the deciduous molars show a near exposure, within a year of the time it is to be shed and it seems advisable to retain it, I often prepare the cavity as if for a compound filling, cutting a deep step, then cauterize with a saturated solution of nitrate of silver and fill with copper amalgam. This is not to be resorted to except where the tooth is soon to be lost, and it must be kept under observation as all near exposures are to be viewed with the suspicion that they are infected and that an abscess may follow. An infected pulp must be treated or the tooth extracted for the sake of the patient's health. It is possible to use pressure anesthesia in some cases but these must be carefully selected. As the rubber dam can not be applied the saliva in the majority of cases prohibits pressure anesthesia in the mandibular teeth and it is only with easily controlled children that it is practical to use it in the upper teeth. After the removal of the pulp and the wearing off of the effect of the anesthetic pain may appear. Long years of practice have convinced me that devitalizing with some form of arsenous acid is the safest and easiest method. In treating an exposed deciduous pulp, first pack the cavity for twenty-four hours with cotton dipped in carbolized resin.

At the second appointment seal in one devitalizing wafer (The J. Bird Moyer Co.), with pink temporary cement and leave twenty-four hours only. If there is danger of leakage, paint the surrounding tissues with iodin before applying the arsenic. Do not use a rubber dam but keep dry with a folded napkin. Fill the cervical third of the cavity first. If there is an approximal cavity let the cement flow into it for strength.

At the third appointment, with a drill made from a broken crosscut fissure bur used in the right angle hand piece, remove the filling. Break down and smooth overhanging walls with a chisel. Remove all caries with a rose bur or spoon excavator and then with a cross-cut fissure bur cut away the roof of the pulp chamber, exposing all root canals. With a rose bur remove all the soft tissue amputating the pulp at the root canals. Under no circumstances use a *broach*. Seal in a dressing of modified phenol with pink temporary stopping.

At the fourth appointment (two or three days later), remove the modified phenol and dress with formocresol. This coagulates the tissues in the root canals. Seal with pink stopping.

At the fifth appointment, remove the dressing and before the saliva reaches the cavity drop peroxide into the pulp chamber. If there is no effervesence, dry and pack the pulp chamber with alum paste, and seal with white stopping (white indicating that treatment is complete).

Alum paste:
R. Alum exsic.,
X. Thymol
Glycerol, aa ℥j;
Precip Calc. Phos.
qs. to make stiff paste. M.

At the sixth appointment, remove the outer portion of stopping, being careful not to disturb the part in the pulp chamber. Press the remaining stopping as far as possible into the pulp chamber to force the alum paste into the canals. This compensates for the shrinkage of nerve tissues in the canal. Trim the stopping ,leaving as much as possible in the pulp chamber. Then fill the cavity with copper amalgam.

Instruct the parent to prevent the child from putting anything but liquids into the mouth for twelve hours, thus giving the amalgam time to crystalize.

Treatment of Dead Pulps

Before treating a deciduous tooth with an abscess, one must determine first, how long the tooth is to be retained and second, whether the pulp chamber is perforated. It is very important to decide during the second appointment just the treatment to be undertaken as it is neither lucrative nor satisfactory to the patient, to treat a tooth for weeks and have ultimately to extract it. In treating a deciduous tooth with an abscess, after washing out the tooth, open and leave a day until the soreness has gone. It is necessary only occasionally to lance a badly swollen gum. If this has to be done, paint the area with iodine before lancing and follow the operation by having the child hold water containing an antiseptic in his mouth.

At the second appointment, if the soreness is gone, cut back in the same manner as in removing a pulp. Wash and dry the cavity and seal in formocresol with pink temporary stopping. At the next appointment test with a drop of peroxide. Repeat the treatment with formocresol until all effervescence ceases, then fill with alum paste. If there is a fistula still showing at the third treatment, put into the fistula a wisp of cotton wrapped about a smooth broach, dipped in phenol-sulphonic acid. Carry the point of the broach to the bottom of the fistula, then gently disengage it, leaving the cotton to act as a drain. Do not fill the tooth until the gum has healed. It must be remembered that the area around the roots of a treated tooth is a weak spot and after a severe illness an abscess may again form.

After the influenza we had a much larger number of cases to treat over than at any other time since I have limited my work to children. A severe case of whooping cough or measles may have the same result. Two or three years after treatment the patient may return with a fistula on the gum over a treated tooth. In such cases a careful survey will often disclose the nearly erupted bicuspid under the treated tooth, often a year or two before the molar should be shed. It is probable that the bicuspid has had less resistance to overcome in erupting, due to the tissues destroyed at the time of the abscess.

Treatment of the First Permanent Molar

The first permanent molar is the most difficult tooth to save of the permanent teeth because it is so often mistaken for a deciduous tooth and left without care until it is too late to be saved. It is the tooth most frequently affected by hypoplasia and frequently is malformed because of malnutrition before birth or during the child's first year. When there is not actual malformation, the fissures are frequently deep and rough and very susceptible to caries, often softening before the tooth is entirely erupted.

Frequently I dry with alcohol and flow in cement hoping to arrest decay until the occluding molar is in position. There are very few that do not require a filling. Of course the best method of preserving the molar is the gold inlay, but for a long time I hesitated using inlays until root formation was complete. Instead I used the smallest fillings of copper amalgam, but I found that in some cases they would darken the teeth. It is my present practice to use gold inlays as soon as any caries appear. With young children the gold inlays should be inspected monthly because there is a variation in occlusion during the shedding of the deciduous teeth.

I never use silver amalgam. I have seen too many teeth lost by the use of silver amalgam where the least decay left under the filling may cause an exposure of the pulp in the course of two or three years, unsuspected by the parent. Copper amalgam will arrest decay and cause less discoloration. In a few cases I use it as a temporary filling, while educating the child to better hygiene, or tiding him over an illness. If there is a question of approaching a danger spot after all caries is removed, I sterilize with phenol and fill with cement for observation six or eight months before making an inlay. Radiograms are of the greatest assistance in watching the development of these teeth. One of the problems I am still studying is what to do with exposed pulps of these teeth at seven or eight years and perhaps in a few years I may gather enough data to advocate some particular treatment.

Follow-up Work

Very early in my work for children I found that some sort of constant supervision was absolutely necessary, if children were to be saved from suffering, and I began prophylaxis at regular periods. The mere fact of painting the teeth with a disclosing solution, and showing the parent where the teeth have escaped the proper care, has a very salutary effect upon the minds of both the child and the parent. In all my work with children I try to build up an appreciation of the value of perfect teeth, telling them that teeth are more beautiful as well as useful than any jewelry, and praising them when they come for prophylaxis, if they have kept their teeth clean and the gums good and hard, but scolding if they have been neglectful. The dental profession has before it the greatest boon that could be conferred upon mankind; the intelligent care and teaching of the laity so that perfect teeth when a child reaches manhood may be the rule and not the exception. This may be accomplished by devising some way of providing every young child with the services of a properly trained children's dentist to supplement the work of the dental hygienist.

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Discussion.

Dr. J. P. Maher.—I am positive that everyone who has listened to this paper by Dr. Jordon appreciates at this time that in handling the children who have come under his observation, he has been very lax in his duties to the child. The parents have every confidence in the dentist and place the child in his care. This trust should not be abused.

Let us now consider the proper attitude of the dentist to his child patients.

From the moment a child is put in his care he becomes morally responsible for the future of that child's mouth. He should realize his responsibility and give that child his very best efforts or refer him to someone who will. The day is long past when the dentist can coolly announce to the mother that these teeth are only baby teeth and will be replaced in a short time by new ones. It is his duty to care for these baby teeth so that the permanent teeth are given every chance to erupt in their normal positions and in a clean, healthy mouth, free from caries.

Wherever possible the work should be of a permanent nature; that is, amalgam fillings or inlays, as we must make every effort to maintain the mesio-distal diameters of the deciduous teeth as the permanent teeth are so much larger than the deciduous teeth. If we do not maintain these dimensions the new teeth cannot possibly erupt in their normal positions. I do not mean to find fault with cement fillings as there are many times when it is impossible to do otherwise, and besides cement has a well defined place in children's dentistry.

Oftentimes we find it necessary to extract deciduous teeth before the time that they should be lost. In all such cases we should maintain the space by placing simple retaining appliances on the adjoining teeth.

Another thing we must avoid is having a deciduous tooth of one arch occlude with a permanent tooth of the other arch. If such a condition is allowed to exist the whole articulation will be thrown off and an acquired case of malocclusion will result.

The child's mouth should be examined frequently and between the ages of four and six years we should ascertain if there is room for the permanent teeth to erupt in their normal position. That is, we must recognize whether or not the arch has sufficient lateral width. If the deciduous teeth at this age are perfectly aligned and no developmental spaces exist between the deciduous anterior teeth, it is almost a physical impossibility for the permanent teeth to be in anything but malocclusion. My advice to every dentist handling children is to consult with an orthodontist frequently—it will do no harm and oftentimes save much trouble in the future.

Dr. Jordon has given us a wonderful paper, not founded on idealistic theories of text-books and magazines, but upon years of experience with children's work. Her methods may not agree with your ideas, but they are the ones that are giving the best results, not over a period of one or two years, but of many years. I have read the paper very carefully and I do not find one thing to criticize. All I can do is to add what I believe the mothers should be taught. The young mother of to-day is just starving for information that will aid her child in becoming a normal, strong, healthy young man or woman. It is up to the dentist to impart this information.

The mothers should be taught—

1st. The care of the mouth of the infant before the eruption of the baby teeth—that is, to cleanse the mouth before and after nursing with a small piece of absorbent cotton wrapped around the finger and moistened with a weak solution of boric acid. Also that the baby positively should not be allowed to suck its thumb or should not be allowed the use of pacifiers, as the bony structure of the dental arch during this period is in a state of development and responds very readily to any constant pressure.

2nd. The time of eruption of the baby teeth:

There are twenty in number; eight incisors, four cuspids, and eight molars. The lower centrals begin erupting at about the 5th to the 9th month; the upper central from the 8th to the 12th month. The cuspids from the 18th to the 24th month. The second molars from the 24th to the 30th month. This is the usual rule for healthy, normal babies. If the baby has had any severe illness, or has not been properly nourished, all kinds of variations from the normal are liable to be found.

3rd. During the period of teething everything pertaining to the baby's food should be scrupulously clean, as its vitality, due to pain and fever, is lower during this time and it is much more liable to respond to the injurious effects of unclean nipples, cooking utensils, etc.

4th. The value of the deciduous teeth as related to the child's health and development—

The health and development of the child depends upon its ability to play well, sleep well, and eat well. That the lack of desire to play, eat, and sleep, is induced more by aching and diseased teeth than all other causes combined; the structure and occlusion of the permanent teeth is largely dependent on the preservation, intact, of the deciduous teeth.

5th. The care and preservation of the child's teeth is dependent upon the mother's efforts, for the child will permit the mother to care for them when it would not a stranger. The preservation of a healthy, wholesome mouth condition is the result of a systematic, thorough and regular care carried on in detail.

6th. The surfaces most vulnerable to decay in the child's mouth are the occlusal surfaces of the molars and the approximal surfaces of all the teeth.

7th. As an aid to the proper daily use of the tooth brush, all the surfaces of the teeth should be polished at least once a month with an orangewood stick, pumice or powder, and the approximal surfaces polished with flat floss silk or dental ribbon carrying pumice.

8th. As an aid in the prevention of caries, occlusal surfaces of molars, where the grooves and sulci are deep and imperfectly formed, should be protected by working soft copper cement into them.

9th. Most important of all—the six-year molar is not a temporary tooth—it is replaced by another tooth if lost, and erupting as it does in early childhood, it must be especially the object of care, and if the grooves and sulci of the occlusal surfaces are deep and perfectly formed they should also be protected by working soft copper cement into them.

10th. The normal development of the jaws preparatory to the eruption of the permanent teeth is dependent largely on the muscles of mastication. For this reason the child should thoroughly masticate all its food, but the food should be prepared in such a way as to require thorough mastication.

11th. According to Dr. Dewey, five out of every nine acquired cases of malocclusion are due to the loss of deciduous tooth structure.

12th. Candy and carbohydrates in other forms are the worst enemies of sound teeth, for the reason that the destruction of the teeth by caries is most easily induced by chemical changes in these substances lodged about the teeth.

13th. The child should not be depended upon to protect its own teeth through its own efforts but the use of the tooth brush in the hands of the mother is absolutely essential in early childhood.

During the last few years we have listened to many discussions on prevention. But prevention can only be accomplished by the proper care of the deciduous teeth, we look around for authorities on children's dentistry, but we search in vain. Prevention is a very popular subject to preach, but very unpopular in practice.

Dentistry for children must play a leading part in the health work among the children of our country; remembering that a normal, healthy mouth is the true basis of good health, may we not all be inspired to greater effort in this important cause. A normal mouth with a full complement of clean teeth is a splendid health insurance and an asset to anyone.

Before closing, I would like to thank Dr. Jordon personally for the use of her able paper, and say that just now, after years of work and study, her work is beginning to be appreciated, and as the years go on she will be placed among the real pioneers of better dentistry.

Dr. Charles A. Sweet.—It is indeed a pleasure to discuss so able a paper as Dr. Jordon has presented, and I hope, when it is published, that every one will take the opportunity to study it carefully, as I have found it to be a tremendous help in my practice.

I wish that I might criticise this paper, but I must confess that it contains only facts founded on years of experience, and all I can do is offer praise with a few suggestions of other means to accomplish the same result. Considering the filling of deciduous teeth every one who has used carbolized resin on cotton will appreciate its value. I have used temporary stopping, and on removing it always leaves an irritated gum tissue that makes it almost impossible to dry the cavity, due to the bloody exudate covering the gingival floor. A fact that is sometimes overlooked is the filling of the mesial surface of the distal tooth first, and polishing that filling to the highest degree, so that the erupting tooth has a smooth surface to come in contact with. I am calling this point in Dr. Jordon's paper to your attention again, as I feel that it is very important. The method of devitalizing teeth that Dr. Jordon has given you is the best I have found and I am truly thankful that I know it, as pressure anesthesia is a complete failure in the child's mouth, unless four walls of tooth structure are standing. In treating putrescent root canals or abscesses on deciduous teeth, I will outline a method that has proved practical in my hands, and which is used in the Forsythe Infirmary and other institutions, with great success: Place cotton rolls in the mouth and dry out the cavity; put a drop of 10 per cent. formalin solution in the cavity, and apply hot air for ten minutes, occasionally adding more of the formalin solution. You may then remove the material in the pulp chamber; then place 4 per cent. formalin solution in cavity and work it about one-third of the way down the root canal, and apply hot air for ten minutes again. This portion of the root canal may be cleaned out and 4 per cent. formalin solution on cotton sealed in with temporary cement; within two days this is removed, and 4 per cent. formalin solution is carried to the end of the root canal, and hot air applied. This is repeated several times, and then it is thoroughly cleaned out. A dressing of eugenol or modified phenol is sealed in for forty-eight hours, and on removing this dressing, if there is no odor, the root canal may be filled. In the Forsythe Infirmary, a microscopic examination is made at this point to determine the presence of bacteria, but in private practice we are unable to do this. To fill the root canals of posterior teeth, use zinc oxide, eugenol and silver nitrate to form a thick paste. In anterior teeth use zinc oxide, eugenol and aristol. This can be forced to place with a pellet of cotton and a cotton root canal point.

In deep decay, where pulps would be exposed by the removal of caries, these pastes may be used, omitting the aristol in the second, with good success.

To treat an exposed pulp of a first permanent molar, place a crystal of thymol at the point of exposure and touch with a hot instrument—this causes the thymol to flow over the exposure and recrystalize—cover this with a thick paste of zinc oxide and eugenol and flow in a hard cement. My experience has not been long enough to determine the ultimate result, but so far it has proven satisfactory.

Before I finish this discussion, I wish to take this opportunity to condemn those dentists who are continually filling deciduous teeth with cement, for I am sure the child would be better off without the teeth filled in that manner, as the cavities would annoy the parent and child until they would be forced to find some one in the community who would place metal fillings that would restore contact and contour and be of real service to the child.

A Professional Man and His Money

In a highly interesting address delivered before the members of the Academy of Dentistry at Toronto on Dec. 14, 1922, Mr. C. W. Mitchell, Vice-President of the Bond Dealers Associatioon of Canada, dealing with the above subject, very emphatically pointed out some of the principal things to be regarded by the professional man when he sought to make an investment.

In opening his remarks he began by quoting the old adage, "It is not what one earns but what one saves that counts," and in a few words showed the importance of and good judgment in such a statement.

His remarks, based on the statistics gathered by the American Bankers Association showed the relative circumstances of one hundred men at the age of seventy years, their history having been kept from the age of twenty. These statistics plainly showed how necessary it is to begin to cultivate the habit of saving. He then proceeded to show the folly of attempting to get rich quick by unsound investments but rather should one play safe and by yearly supplementing a safe investment, have at the end of his earning days a pleasing and reliable balance. For such safe investment, Mr. Mitchell advised the purchase of government, municipal or public utility bonds and considered this type of investment very wise for the professional man. In comparison with these bonds, such securities as industrial stocks had in them that certain degree of risk, due to varying conditions not necessarily under control of the company concerned, but which nevertheless affected their value as an investment. Those who intended to buy industrial stocks, however, were strongly urged to go very carefully into all details concerning the company's affairs, viz.—financial standing, integrity of its directors, amount of bonds sold compared to real assets of company and the fluctuation of company's yearly earnings.

Continuing, the speaker gave sound advice in warning his listeners to divide their investments among different interests, rather than have all their savings deposited in one place, also that they not place their money in unmarketable securities lest some time it be required to meet some emergent need where immediate sale of securities would be imperative.

Touching on the point of speculation the speaker again reminded his hearers of the all-too-human desire to get rich quick but pointed out that rarely did one person in a hundred ever win at the wheel of speculation.

Leading the subject into more personal channels, Mr. Mitchell sounded a note of warning to the professional man to regard his home and his dependents as worthy of his greatest consideration and for him to give to those dependents all the comforts and necessities which make for happiness rather than have his bank account appear just so much larger each year, and for this he would reap a harvest of pleasure indeed. Rather also should he enjoy the refinement and education gained by travel, the arts and the sciences.

The speaker's closing remarks dealt with the importance of entering into the activities of a man's own community and his duty of putting his best efforts into service for others and in every way striving to make the best possible citizen.

Mr. Mitchell's remarks were regarded throughout with intense interest and each one of his audience went away with a feeling of sincere gratitude to the speaker for his splendid efforts shown in his most profitable address.—Reported by Dr. Harold Percival.

A Flow of Oxygen for Excluding Moisture

In the December issue of the Journal of the American Dental Association, Dr. Southwell says, "I will demonstrate what can be accomplished without the use of the rubber dam, clamps, matrix, ligature or previous treatment of the gums, in all normal and accessible cavities in the upper jaw anterior to the distal surface of the first molar.

And that in the control of moisture nothing will be used other than one small cotton roll and a continuous mild flow of oxygen from an ordinary chip blower nozzle held by an assistant. To encourage your belief in this departure, even though it takes on a suggestion of the vaudeville, I beg to, in addition, say that it is all so simple and so feasible that it is one's privilege to slightly moisten the cotton roll in advance, in order that it may, more comfortably, be adapted to the gums. The roll, unless made too moist, will become sufficiently dry as soon as the gums become desiccated.

Permit me to go farther and say that if, in a normally accessible cavity, the gum line is approached or if it be intruded upon, or if the cavity is only reasonably beyond the gum line—nay, even if the gum be moderately abused, one may depend on the above directed use of the oxygen. Instead of being nerve wracking or audacious I am so unhurried ordinarily, that I have been known to leave the chair to answer the telephone.

Heed need not be given to the contact of the gold with the gums—no more than if it were dry leather for the thorough desiccation makes it such for the time being.

With gingival cavities in the upper jaw, that extend moderately beneath the gum, one may freely and confidently use nothing but the oxygen and one cotton roll and actually force the gum back with the gold as it is being driven and chiseled over the cavity margins. I renew the statement regarding abused gums but of course have reference only to an average condition.

The dependability of oxygen, that which is employed in welding everywhere, is so simple and marvelously amenable that I am chagrined not to have hit upon it many years ago.

Arrangements have been made to demonstrate that *after cohesive foil strips have been annealed,* they may be laid, spread and even burnished upon desiccated gums without adversely affecting the cohesion.

And furthermore, that for the purpose of such demonstrations the oxygen need be employed no more than three minutes. In fact, during April of this year, in this particular demonstration, before President Friesell and Harold S. Smith, the time of desiccation was but sixty seconds. However, it is best in one's practice, to begin the flow during the cavity preparation for the reason that when ready for the gold, the desiccation has advanced to the point where the gums may be dealt with with seeming carelessness. Assuming that one question is now being formulated in the minds of my readers I will say that while a prolonged application produces a very slight blanching of the gums, at the gingival margin, I have noted no adverse effect whatever and that the gums function normally quite as soon as the oxygen is removed.

In practice I have, furthermore, found that the continuation of the desiccation is of great comfort in the disking of the fillings which, through the definite control of excess and the precise management of the contouring enroute, as afforded by the Bonwill, requires but a very few minutes. At times but one or two disks are required.

I wish to call attention to the delightful revivifying effect of the oxygen on the vitiated atmosphere of the patient, operator and assistant.

Mastication

It is obvious to anyone that the more finely food is divided the more easily can the gastric juices attack and dissolve it; and, while it is true that meats of all kinds are dissolved by the hydrochloric acid and pepsin and that meat can be eventually digested, no matter what the size may be, the swallowing of food in lumps brings on a great waste of nervous energy and unnecessary irritation of the stomach. Cannon, in an investigation, by means of the fluoroscope, of gastric digestion showed that hard lumps, when permitted to enter the stomach, call forth a considerable degree of muscular activity, and a lump of hard food may be observed to be propelled by the hollow muscle of the stomach against its pylorus, which immediately contracts and remains contracted from six to eight minutes, thus shutting off the steady flow of partially digested material from the small intestine and at the same time wasting much nervous energy and tending to wear and tire out the pylorus and muscular coat of the stomach.

Mastication of the food, first as applied to food itself, makes swift and easy its solution by the gastric juices. Second, it brings about exercise of the jaws themselves which tend to make a stronger and better bony framework, making room for strong, well-developed teeth, which cannot occur if the jaws receive no exercise in the mastication of foods. Third, thorough mastication of all foods increases the size of the salivary glands which have the power and function of turning our energy-making starches into maltose. Fourth, the growth of the skull itself, particularly the base of the skull, will be greater and better and more vigorous if the child is taught the absolute necessity of thorough mastication of all foods, and in addition to that is compelled to have prescribed for him foods which demand mastication.

How many men in the practice of dentistry have made it their duty to carry out this fundamental knowledge to their patients in such form that it becomes habit with the patients? Who, more than the dentist, ought to teach the people the value of the mechanics of digestion? Who, more than the dentist, should teach patients the value of the part to be performed by the first three inches of the alimentary tract?—Thomas B. Hartzell, M.D., D.M.D. (*Journal of the American Dental Association,* October, 1922).

Nervous and Mental Diseases Due to Infection

The most serious result of infected teeth is to be found in the relation of this infection to nervous and mental conditions. Since we have found at the State Hospital at Trenton that many of the patients suffering from mental diseases had also very serious chronic infections of the teeth, tonsils and gastro-intestinal tract, and that by eliminating these infections our patients recovered, we are justified in concluding that these chronic infections play a very important role in the causation of the mental condition. Of course, other factors, such as we have mentioned, have a profound effect in lowering the vitality and allowing a latent infection to become active. By recognizing the fact that mental diseases may be the result of infection and the toxæmia or poisoning due to this infection, we have been able to restore many patients, who with our former methods of treatment became chronic patients and remained in the hospital until the time of their death. Thus we have been able to discharge 87 per cent. of the patients admitted to the hospital in the last nine months, whereas for a period of ten years, the proportion of discharges to admissions was only 43 per cent. As a prevention of mental diseases, then, it would seem that the proper care of the teeth is of the utmost importance, and we would emphasize the fact that the proper care is entirely different from what the usual dental examination reveals, and that only by refusing to have devitalized teeth (teeth in which the nerve has been destroyed) crowned or otherwise preserved, and insisting upon having these teeth extracted, can we hope for better teeth and prevent infection, which later will have serious consequences. This is a matter which can be controlled by the individual, and it is the public in general who can bring about a better state of affairs by insisting upon good dentistry, in the sense we have explained, and by not allowing the kind of dental work which preserves the teeth to the detriment of the patient's health. Such results as we are trying to obtain can only be brought about by educating the public in these matters, as well as the medical and dental profession. For this reason we believe that the widest publicity should be given to these facts and their importance emphasized both from the standpoint of prevention and cure.—HENRY A. COTTON, M.D., *Oral Hygiene.*

International Association of Dental Research

The first annual meeting of the International Association of Dental Research was held at the Columbia Club, New York, December, 21st, 1922. The President, Dr. J. Leon Williams, presided. Representatives were present from Ann Arbor, Toronto, Boston, Philadelphia and New York, in all about twenty. The subject for discussion was the histology of enamel and dentine. Dr. Boedecker presented an illustrated address which showed a complete circulatory system in the dentine and the enamel. He also drew attention to the fact that there is a much larger amount of organic matter in enamel than had been previously supposed. In closing he asked that a committee be appointed to go into his findings and determine if they can be corroborated. J. Leon Williams presented an address together with many slides which would seem to indicate that the enamel rod is not hexagonal and the cementing substance so called has a central tube which Boedecker claims is the means of circulation. It had been thought that enamel could not be stained but a method of staining by nitrate of silver was shown. On the other hand Dr. Hopewell-Smith believed the coloring due to the action of the acid in the nitrate of silver. Dr. Bunting directed attention to the permeatibility of enamel when recently erupted or when recently ground but if polished in the mouth the penetration of the tissue was much less, the supposition being that enamel takes up something from the fluids of the mouth which make it less permeable. Dr. Webster said that these observations would seem to explain the well known fact that recently erupted teeth are often highly sensitive to acid fruits and that recently cut enamel as well as dentine becomes sensitive in the presence of certain irritants. In closing the discussion, Dr. Gies congratulated the association on having presented at its first meeting two such excellent papers, and wished to know of what practical value to the practising dentist these papers were. A short business meeting was held at which a section from Michigan University was accepted and among other eminent scientists elected to membership was Miss Fraser, M.A., Department of Dental Research, University of Toronto. The next annual meeting will be held in Boston with the following officers:

Honorary President	Prof. W. J. Gies
President	Dr. J. Leon Williams
Vice President	Dean A. E. Webster
Secretary-Treasurer	Dr. Luman Waugh

The Dental Study Circle, Montreal

A regular meeting of the Circle was held in the Blue Room of the Windsor Hotel with Dr. J. Rubin in the chair.

The minutes of the last meeting were read by the secretary; a motion to the effect that they be adopted as read was moved by Dr. Halperin and seconded by Dr. Lightstone, carried. A letter from the Allied Dental Council, notifying the Circle of its election into their fold was read. The Secretary was instructed to answer same.

Dr. Rubin then introduced the speaker of the evening, Dr. A. W. Thornton, Dean of the Faculty of Dentistry at McGill University, who took, as the subject of his address, "The Modern Trend of Dentistry."

Pointing out initially, the present position of the profession of Dentistry, with its vast potentialities for service to mankind, Dr. Thornton, with his well known eloquence, delivered a most inspiring address. The importance of metastic infection opens up a very wide field for research and this work is most intimately connected with the practice of dentistry.

Dr. Thornton visualized that period of time, within the near future, when the dentist will be regarded in the same light as the physician and surgeon; and pointed out our need for earnest study and research work in order to meet successfully the responsibilities that we must assume.

To do this it is not only necessary to announce that one is confining his practice to a specialty. It is far more important that the preliminary application to the allied subjects be made, to fit oneself for the practice of a specialty.

Honor, fame and wealth await those who will but apply themselves. Dr. Thornton offered to write a letter of introduction to the head of any research or post-graduate college, whom he is personally acquainted with, in order to smooth the way of any one of us contemplating the undertaking of such work.

In the discussion that followed, Drs. Halperin, J. Rosen, A. S. Solomon and Lightstone participated; all thanking the Dean for the inspiration accorded them.

A general vote of thanks was moved by Dr. A. S. Solomon, and seconded by Dr. N. Lande. Carried unanimously, and conveyed to Dr. Thornton by our chairman, Dr. J. Rubin, Abstracts of British and Foreign Journals.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

ONTARIO—Carl E. Klotz, L.D.S., St. Catharines.

QUEBEC—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D.S., L.D.S., McGill University, Montreal.

ALBERTA—H. F. Whittaker, D.D.S., L.D.S., Edmonton.

NEW BRUNSWICK—Jas. M. Magee, L.D.S., D.D.S., St. John.

SASKATCHEWAN—W. D. Cowan, L.D.S., Regina.

PRINCE EDWARD ISLAND—J. S. Bagnall, D.D.S., L.D.S., Charlottetown.

MANITOBA—M. H. Garvin, D.D.S., L.D.S., Winnipeg.

BRITISH COLUMBIA—E. H. Hetherington, D.D.S., L.D.S., Victoria.

Vol. XXXV TORONTO, JANUARY, 1923 No. 1

Possible Division in the Ranks of Dentistry

Has it ever occurred to the leaders of dentistry and especially to dental educators what the significance of the development of so many dental specialists really means. At the outset it means that the general dental society or association does not give scope or room for extensive study along special lines. The general practitioner is not interested in the minute study of a special subject. Because of this, the Angle School of Orthodontia was organized. Specialists in orthodontics have often said that a degree in dentistry is not necessary or even desirable to practice orthodontia. Many of them hold that the subject should not be taught in a dental school at all. Fundamentally its basis and practice are on other sciences and arts. It is with difficulty that orthodontia is being held within the fold of dentistry. It is argued that it belongs to the general subject of pedriatics which has as much to do with the deformities of other parts of the body as with the teeth.

The next section of the dental profession to make a special organization were those who were treating diseases of the gums and soft parts of the mouth as a specialty, known as the Academy of Peridontia. This organization takes biology, histology, anatomy, pathology and radiology as its fundamental subjects and reaches out to include all general diseases which have their origin in focal and general infections of the mouth. On its treatment side it does both medicine and surgery, but leaves to the oral surgeon accidents, deformities and new growths of the mouth. This organization is in the closest co-operation and association with the practitioners of medicine and surgery. In fact they are much more closely associated with medicine or surgery than these are with opthalmology. It is with this group that physicians want closer co-operation and in fact it is with them they so often agree that dentistry is part of medicine. This organization has more to do with preventive medicine than with preventive dentistry.

Just recently oral surgeons have organized. Correctly speaking only those who have a thorough training in dental surgery and general surgery belong to this organization. Exodontia and anaesthesia of necessity drop into this group many of whom will be admitted. There is no argument necessary to show how closely they are associated with general medicine and surgery. Many of them of necessity will hold the M.D. degree. The general dentist hardly looks upon the oral surgeon as of his own profession. The physician accepts him as of his profession.

Three or four years ago dentists who practise prosthodontia organized and accepted as their fundamentals, physics, engineering, metallurgy and special functional anatomy. This association leans toward the engineering and artistic side of dental practice.

It is interesting to note what is left of the general subject of dental practice. Prevention of dental caries and repair of the hard parts of the teeth are all that is left. Is this group which is not yet organized large enough and strong enough to remain as a central body about which all the rest will cluster, or will itself divide into two sections, one following the groups of orthodontia, peridontia and surgery and the reparative section aligning itself with prosthodontia? Each specializing group looks with a certain amount of disdain and pity upon the general practitioner who holds to the central group of preventive dentistry which includes repair of the hard parts of the teeth.

It thus appears that dentistry divides itself naturally into two groups, the general medical side which includes surgery and the engineering side which includes the mechanical. We find orthodontia, peridontia and oral surgery aligning themselves with the former and prosthodontia, operative dentistry—crown and bridge work with the latter.

If there were no outside influences dentistry would remain one solid and coherent body as general medicine has, but what do we find? Historically dentistry was a part of medicine. It was practised by physicians. In Europe this condition still obtains in many parts. Dentistry has recognized that it cannot intelligently practise its calling without a knowledge of the fundamentals of general medicine, and should have like recognition. Its laws, its ethics and its practice are identical with medicine. The leaders in medicine are constantly asking and hoping for closer co-operation. Many have said that dentistry is a part of medicine and should be so recognized. Dentists are now being admitted to membership in medical societies. The American Medical Association has had a section on stomotology for years. On the other hand physicians are being admitted to membership in Dental Societies. There is a constant interchange of speakers and essayists at dental and medical society meetings. Dentists are on the teaching staffs of medical schools and physicians are on the staffs of dental schools.

The medical profession being the older body with the traditions of centuries behind it is attractive to the members of the younger body Under such influences what is likely to happen? Will one dental organization after another release its allegiance to dentistry and join the general body of medicine, until finally what is known in England as mechanical dentistry and filling teeth will represent the practice of dentistry? Is such a consummation in the best interests of the public? It remains to be seen. Do our leaders recognize what is happening? Dentistry is a mechanical art while orthodontia, oral surgery and peridontia go to swell the ranks of general medicine.

Editorial Notes

The regular biennial elections of the Royal College of Dental Surgeons which were held in December, 1922, resulted in the election of

District No.	1.	Dr. Sam Davidson, Ottawa	Acclamation
" "	2.	Dr. H. Irvine, Lindsay	
" "	3.	Dr. R. Gordon McLean, Toronto	do
" "	4.	Dr. Walter Thompson, Hamilton	do
" "	5.	Dr. W. M. McGive, Simcoe	do
" "	6.	Dr. W. E. Bruce, Kincardine	
" "	7.	Dr. S. A. Kennedy, London	do

It would seem from an investigation of several cases that small foci of infection found about the apices of human teeth are due to streptococcus veridaus and the larger areas either a mixed infection or streptococcus hemolyticus. The latter are usually acute in action.

Dr. J. L. Sutton had a fire loss of $2,000.

Dr. Bobb of Regina read a paper before the Regina Dental Society on cost gold inlays.

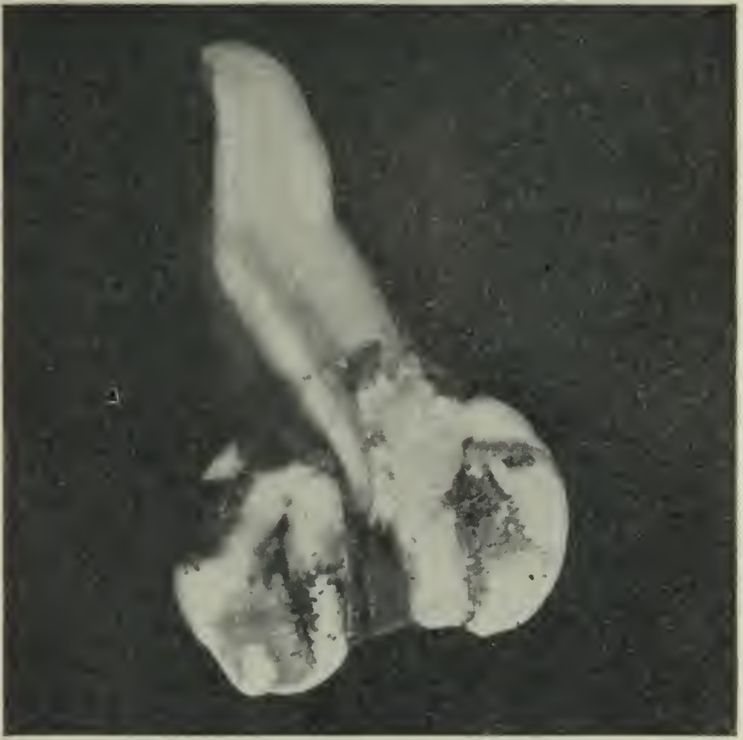
Dr. F. G. Law, a Toronto dentist, is being sued for damages in connection with a broken hypodermic needle.

In the November issue of the Journal of the American Dental Association appears an editorial on the subject "The Principles of Reciprocity," and closing with a report of a committee which has for its object a complete exchange of licenses among all the states. There will need to be a better understanding of the principles of reciprocity than those set forth in the editorial before much success will be met.

We regret to notice that a death occurred under nitrous oxide gas in the office of Dr. Griffin in Detroit.

London dentists have chosen Saint Apollonia as their patron saint. Apollonia was a Christian virgin of Alexandria, who suffered martyrdom during an uprising of the heathen. She was seized, and had her teeth broken by repeated blows before leaping of her own accord into a flame of fire prepared for her. Since then her name has been invoked by sufferers from toothache. Old paintings go further than ascribing her efficacy to her spiritual influence. She is represented as holding pincers in her hands, in which there is a tooth, as though she had just drawn it.

Dr. Sykes, of London, has sent us a specimen which is unique. It appears to be two well-formed cuspid crowns ingrafted upon the sides of a mass of dentine roughly in the form of a root, but containing vastly more tissue than found in an ordinary cuspid root. The dentine mass extends the full height of the crowns, thus separating the crowns by at least five milimetres.



Dr. Sykes says the enclosed tooth was extracted by him recently. It is an upper right cuspid mal-formed and extracted because of peridontitis. The X-ray picture was taken to ascertain the size, direction and extent of the root. The extraction was made with considerable difficulty, the forceps being difficult to adjust to the double crown.

Mr. Thomas Steele, founder and Vice-president of the Columbus Dental Mfg. Company, died Saturday, October 28th, 1922.

Dr. Cotton, who is at the head of the hospital for mental diseases at Trenton, N.J., believes every tooth with a non-vital pulp should be extracted. First, to prevent mental diseases, and second, as a warning to the public that they will lose their teeth if they do not see to their care early and not allow them to reach the point of pulp involvement.

The amalgamation of the Temple-Pattison Company, Limited, and the Claudius Ash Sons & Co. of Canada, Limited, into a new company to be known as the Ash-Temple Company, Limited, with a capital of $725,000, was announced recently. The Ash firm is a pioneer dental supply manufacturing company of the world. It was founded 105 years ago and now has houses in all the principal cities of Europe, United States and Australia. One of the objects of the amalgamation is to enable the Canadian firm, the Temple-Pattison Company, to sell to the dental profession British products at a much lower price than heretofore. The Temple-Pattison Co. was founded 27 years ago by H. P. Temple, who is the president of the new organization. J. W. Brent is the vice-president and W. M. Temple is the secretary-treasurer. Mr. Brent was formerly with the Ash company.

The head office of the new organization is at 243 College Street, and branches will be in London, Hamilton, Winnipeg, Regina, Calgary, Edmonton and Vancouver. New branches will also be opened in Ottawa and Montreal in 1923.

There is to an exhibition in New York beginning Feb. 17, 1923, at which will be celebrated the names of some of the world's greatest inventors, among them will be Edison, Bell, and Westinghouse.

A testimonial banquet is to be given to Dr. Thomas J. Barrett, Worcester, Mass., Jan. 8th, to do honor to a man who has done much for the cause of dental education and public service generally.

The reconstruction of the dental building of Montreal University, which was destroyed by fire a few weeks ago, was begun Dec. 14th. It is hoped that some parts will be ready for occupation early in January.

The Unsatisfactory State of Affairs at School Dental Clinics

To the Editor of D. D. Journal,

Sir,

The reports in the British Journal of Dental Science, London, of school dental clinics somewhat frequently indicate that all is not well with the efforts being made there to lessen the national contribution to the ''curse of modern times,'' universal dental decadence.

One report, that from the Loughborough dental clinic, states '' the children whose mouths most require attention did not attend for treatment.'' The writer is not in the position to institute comparisons with the conditions obtaining in Canada and those in England and Australia, and, if he were, he is cognisant that Mrs. Malaprop has declared ''comparisons are odorous.'' Yet he opines that, as human nature is pretty much the same everywhere among the civilized races, similar conditions obtain in the ''land of the free'' as in the mother country. However, be that idea right or wrong, for the benefit, if need be, of his cousins in Canada, he pens a few lines, indicating, in his opinion, the cause of the failures and a few suggestions by which to secure the confidence of children and the support and influence of the parents towards a mitigation of the calamity.

The condition mentioned as obtaining in Loughborough, England, is merely an echo of others in different countries and is caused by two factors. The primary one is the lack of interest, arising from ignorance, on the part of parents and guardians concerning the teeth of their children or wards. The second is that of pain, often of an unnecessary amount, to be borne by the children, who are, of course, unaware of the necessity for dental treatment which might certainly have a beneficent effect upon their whole life.

Of course, dental conditions such as quoted predicate considerable pain and fortitude to bear it, (unless the children are patients of dentists specially trained for such work), but why has the condition arisen? The answer is want of public dental education. Of what use are abstruse, or even plain simple, though learned, articles in medical and dental journals to the public? It is quite safe to say that not one person in a hundred thousand of the population ever sees a medical or dental journal, and, were it otherwise, such literature would be caviare to lay readers.

School dental clinics, as conducted at the present time, will never eventuate in success in mitigation of "the curse of modern times," universal dental caries! Moreover, as at Loughborough and elsewhere, those most needing treatment are afraid to attend. Far too often the work of the clinic is repair and very little effort to teach or, better still, to carry out preventive dentistry, is made, or, if made, it is singularly unsuccessful!

What is wanted is an inducement to parents, particularly the mothers, to get a mental grasp of the conditions that cause dental caries, and also that if their children were dentally healthier, the medical and chemists' bills would be greatly reduced, leading to larger savings' bank balances. Emphasis and demonstration should prove that the children with the most defective teeth compete with one another for the bottom places in their classes at school. Thus they continue to be a burden upon their parents in not being fit to begin the battle of life as early as they otherwise would.

To bring these considerations to the clear understanding of the people, it is necessary to offer some inducement for parents and guardians to attend lantern demonstrations of the consequences of neglect, and the advantages of dental hygiene. Almost all persons, both adults and children, are fond of screen pictures, and, if such were offered concerning the teeth free of charge for admission and followed by interesting and comic readings, good audiences would be obtained. The subject matter to be featured on the screen is most important, indeed; unless we can stimulate the parents to see that their interests are more concerned than even those of their children, it will be equivalent to the play of Hamlet with Hamlet left out.

The screen should show the boy who has been consistently attended to dentally and who has been controlled in dental hygiene by his parents, gradually rising into prosperous conditions, and the savings bank book of his parents with a growing credit balance. The obverse would be a boy with a swollen face, ragged clothes, doing menial work. The tickets should be issued to the children on condition of attendance by the parents in ample time to ensure the attendance of the parents, their presence being a "sine qua non" for admission of the children. It might be necessary to deny admission to any one who came late to the lecture. By this the pill of knowledge would be gilded and a large proportion of the rising generation would be benefitted by a measure of prevention.

The writer earlier referred to the considerable pain and fortitude necessary under many dental operations as ordinarily performed. They must be alleviated, and sympathy with the little sufferers will go an immense way to rob the dental surgery of its terror for juveniles.

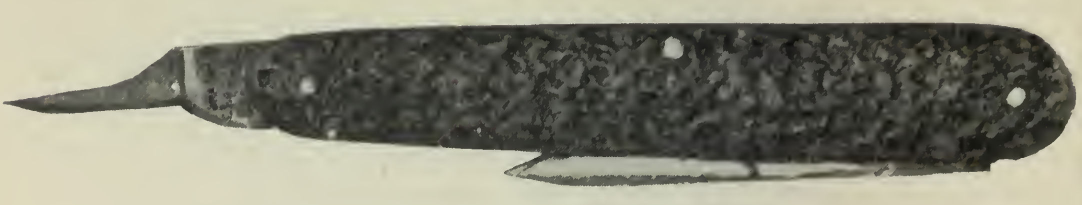
First, the dentist should borrow the mannerisms of the photographer, he should discard his air of seriousness and importance, and be a little jocular, even to the extent of a little fun, or as Horace wrote "misce stultitiam conseliis breven."

Secondly, very little actual work should be done at the first visit. With a very nervous child, the operator can ask to be allowed to examine one of the patient's fingers and tell the child that the thumb nail would look so nice if it were polished. When that is done, he will not refuse to have his front teeth treated in the same way with a pointed piece of hickory, revolved with a lental engine. On a subsequent visit, if the dreaded rubber dam and clamp has to be applied, again one of the child's fingers may be borrowed and, a hole having been punched in the rubber dam, it can be stretched over the top of the finger, and the clamp pressed open wide enough to first, *very slightly* pinch the top of the finger nail. It is then that the humane dentist can heartily rejoice that science has given him cocaine hydrochloride, but not to be barbarously injected and the tissues of the gum burst with pressure of a piston in a syringe. Let the dentist use a roll of soft Japanese bibulous paper on each side of the tooth to be treated and swab the gum on both sides with a saturated solution of cocaine.

Then repeat the experiment with rubber and clamp on the child's finger, taking care that the clamp is not down near the root of the nail, and these essentials for a perfect stopping can be adjusted without the least pain and fear by his patients, both young and adult.

There is a condition with the temporary molars with contiguous decay where the gum becomes hypertrophic and fills the cavity to be treated. To press this gum away with wool would give the child great pain and result in the gum on the buccal and lingual sides being humped up, and rendering the adjustment of the dam impossible—at least to me.

In that case I give a generous swabbing of the gum with strong solution of cocaine and cut the morbid growth of gum away with a thin and pointed knife, and I have yet to see the child who will give me any trouble in my practice. Kindness and short sittings banish the dread of the dental chair by children.



The suggestions herein are offered with great diffidence for, as Terence wrote, there are and will continue to be ''quot omines tot sententiae'' and yet if I may borrow from Horace I would add ''candidus imperti; si non nis utere mecum.''

H. Hayes-Norman, D.D.S.

Adelaide,
South Australia,
Oct. 27, 1922.

Dominion Dental Examinations

September, 1922

Passed in Operative Dentistry (paper).

Barnes, David; Hamilton, C. W.; Kerr, G. A.; Kerr, W. J.

Passed in Prosthetic Dentistry (paper).

Barnes, David; Hamilton, C. W.; Kerr, G. A.; Kerr, W. J.

Passed in Anaesthetics.

Barnes, David; Hamilton, C. W.; Kerr, G. A.; Kerr, W. J.

Passed in Materia Medica and Therapeutics.

Atkinson, W.; Allen, E. F.; Barnes, David; Beattie, P. A.; Bird, S. R.; Blanchard, F. N.; Bradford, R. A.; Calkin, V. C.; Clements, R. W.; Clermont, A.; Coutts, W. M.; Dinniwell, R. A.; Flora, W. S.; Florian, S. D.; Graham, J. R.; Hamilton, C. W.; Heather, M. P.; Heal, H. H.; Hogan, M. F.; Jackson, J. E.; Kay, L. D.; Mann, S. C.; Mitton, G. I.; Miles, R. L.; MacDougall, J. L.; MacLean, F. J.; McIntyre, H. A.;

McIsaac, S. G.; Nelson, C. A.; Simon, M. L.; Trueman, Wm. L.; Ward, W. C.; Wagner, G. W.; Westlake, L. J.; Wilson, R. L.; Woods, A. R.

Passed in Orthodontia.

Bagnell, S.; Barnes, David; Hamilton, C. W.; Kerr, G. A.

Passed in Medicine and Surgery.

Akins, S. C.; Barnes, David; Hamilton, C. W.; Kerr, G. A.; Wagner, G. W.

Passed in Pathology and Bacteriology.

Barnes, David; Bird, S. R.; Blanchard, F. M.; Calkin, V. C.; Coutts, W. M.; Dinniwell, R. A.; Florian, S. D.; Hamilton, C. W.; Heal, H. H.; Hogan, M. F.; Kerr, G. A.; McIsaac, S. G.; Towner, C. J.; Westlake, L. J.

Passed in Jurisprudence and Ethics.

Hamilton, C. W.; Kerr, G. A.

Passed in Physics and Chemistry.

Akins, S. C.; Baker, A. L.; Barber, J. L. C.; Bisnett, A. M.; Bradford, R. A.; Bristow, R. W.; Campbell, R. H. M.; Dodds, R. E.; Donald, S. K.; Florian, S. D.; Foote, J. C.; Gardiner, W. O.; Godard, W. R.; Grady, F. V.; Graham, J. R.; Greene, Chas. J.; Hall, O. M.; Harper, S.; Hamilton, C. W.; Haughton, W. A. A.; Hewitt, J. J.; Hingst, H. W.; Hogan, M. F.; Huffman, R. W.; Jackman, V. M.; Kay, L. D.; Louden, W. R.; Massey, L. E.; Mitton, G. I.; Moyer, W. M.; Mutton, H. A.; Macdonell, M. J.; McIsaac, S. G.; Rattle, W. F.; Robinson, J. A.; Scharff, R. L.; Slack, C. S.; Storey, E. A.; Urie, B. A.; Walley, G. A. C.; Walker, J. G.; Warner, T. W.; Ward, W. C.; Waring, A. W.; Westlake, L. J.; Woods, A. R.; Wright, J. E.

Passed in Anatomy.

Bisnett, A. M.; Boyd, J. A.; Bradford, R. A.; Bristow, R. W.; Calkin, V. C.; Campbell, R. H. M.; Courville, E. G.; Dodds, F. E.; Donald, S. K.; Dutton, E. M.; Ferguson, R. H.; Florian, S. D.; Foote, J. C.; Galbraith, R. M.; Gardiner, W. O.; Godard, W. R.; Grady, F. V.; Greene, C. J.; Hall, O. M.; Harper, S.; Hamilton, C. W.; Haughton, W. A. A.; Hingst, H. W.; Hogan, M. F.; Huffman, R. W.; Jackman, V. M.; Massey, L. E.; Mahoney, R. L.; Mabee, J. C.; Moyer, W. M.; Mutton, H. A.; Macdonell, M. J.; MacLellan, D.; MacMillan, D. D.; McDougall, R. H.; McKinley, A. W.;

Rattle, W. F.; Ramage, C. C.; Robinson, J. A.; Scharff, R. L.; Simms, F. C.; Simon, M. L.; Slack, C. S.; Storey, E. A.; Strachan, C. L.; Urie, B. A.; Walley, G. A. C.; Walker, J. G.; Warner, T. W.; Waring, A. W.; Wright, J. E.

PASSED IN PHYSIOLOGY AND HISTOLOGY.

Beck, C. L.; Bisnett, A. M.; Bliss, H. C.; Bradford, R. A.; Campbell, R. H. M.; Coutts, W. M.; Dodds, F. E.; Donald, S. K.; Dutton, E. M.; Ferguson, R. H.; Florian, S. D.; Foote, J. C.; Galbraith, R. M.; Godard, W. R.; Grady, F. V.; Graham, J. R.; Greene, C. J.; Hall, O. M.; Harper, S.; Haughton, W. A.A.; Hingst, H. W.; Hogan, M. F.; Huffman, R. W.; Jackman, V. M.; Kerr, G. A.; Kelly, V.; Lloyd, D. D.; Louden, W. R.; Mitton, G. I.; Miles, R. L.; Mutton, H. A.; MacDonell, M. J. MacMillan, D. D.; McDougall, R. H.; McGinnis, J. A.; McIsaac, S. G.; Rattle, W. F.; Ramage, C. C.; Scharff, R. L.; Slack, C. S.; Storey, E. A.; Strachan, C. L.; Taylor, A. W.; Urie, B. A.; Walley, G. A. C.; Walker, J. G.; Warner, T. W.; Waring, A. W.; Wagner, G. W.; Woods, A. R.

PASSED IN OPERATIVE DENTISTRY (PRACTICAL).

Barnes, David; Kerr, G. A.; Wagner, G. W.

PASSED IN PROSTHETIC DENTISTRY (PRACTICAL).

Barnes, David; Kerr, G. A.; Wagner, G. W.

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ORIGINAL COMMUNICATIONS

The Dentist and His Money

W. E. Troth, B.A., D.S.S., L.D.S., Toronto

(Delivered before the Academy of Dentistry, Toronto, December, 1922)

Mr. John Mitchell, Vice-President of the Bond Dealers Association of Canada, is giving us some good advice tonight on how best to invest our surplus earnings. This advice is badly needed by professional men in general as it is well known that they usually occupy a prominent place on all sucker lists used by wild-cat promoters and gold brick vendors.

However, in order to avail ourselves of Mr. Mitchell's advice, it is first of all necessary that we should learn how to conduct our practices so as to show any surplus for investment. It is almost incredible how few dentists are accomplishing this feat.

Some eight years ago Bradstreet's made a financial survey of over twenty thousand dentists in the United States and found almost 50% of them unworthy of credit. In other words, they were not making a financial success of their chosen calling. I doubt if this percentage would be as large in this Province but I do know that it is much larger than it should be. What are the most important causes of these financial failures? There are many and most of them are controllable. Among the most important I would name extravagance, foolish investments and lack of business system in conducting our practices.

The first cause "extravagance" is usually caused by the dentist overestimating his earnings and having no definite knowledge of what his actual expenses are. He forgets that his years of big earnings are very limited and the money he is spending so freely should be set aside for the time fast approaching when his earning capacity will dwindle or stop.

The average dentist does not attain a full practice until he is thirty years old and cannot expect to maintain a full practice for more than twenty years. You will recall many exceptions to these figures, but I am speaking of averages and it is never safe to hope that we will be more fortunte than the average. With very few exceptions the earnings of dentists are never such that they can afford to spend money recklessly nor to invest it in hair-brained schemes of doubtful promoters. I am convinced that the man who confines his investments to the purchase of his own home and of high grade investment securities will be a long way ahead in the course of a number of years. Poor business methods of conducting our practices are largely responsible for poor bank balances and lack of money for investment. This being controllable should demand our most careful attention.

Too many of us are without any definite information as to what to base our fees on and are therefore not charging sufficient fees in many cases to cover our legitimate expenses. The first thing every man should do if he expects to come out on the right side of the ledger is to figure out exactly what his annual expense amounts to and add to this not what salary he thinks he is worth but what salary he thinks his practice can afford to pay him. Then he should divide this by the generally accepted number of working hours there are in a year which, after allowing for Sundays, Saturday half holidays, summer holidays and public holidays, does not amount to more than 1800 hours.

A list of legitimate expenses would read about as follows:

	per annum
Interest on cost of education and college equipment ($8,000 at 6%)	$480.00
Depreciation of outfit (10% on $2000)	$200.00
Rent	720.00
Supplies	600.00
Office assistant	600.00
Telephone	50.00
Laundry	75.00
Magazines and newspapers	15.00
Gas and electricity	60.00
Stamps and stationery	100.00
Own salary	2500.00
	$5400.00

Divide this by actual number of working hours in the year, viz., 1800, and we get three dollars as a basis of expense for working hour, that is unless we take in at least three dollars for every hour we work we will be out of pocket. Of course, the city dentist with high office and living expenses the figure would work out closer to four dollars per hour as a minimum fee. This should form the basis of a man's calculations when he commences practice and at that time he would of course figure on the smallest salary possible to live on. As time goes on and practice increases the fee per hour should be gradually increased to cover extra expenses and increased salary. In making these calculations some allowance should really be made for many idle hours of which there may be many during early years of practice. The great trouble with too many of us is that there are many minutes each day which are unproductive. There are many ways in which time can be wasted such as talking at the telephone which should only be indulged in by the office assistant or spending too much time in receiving and dismissing patients. Too frequently we underestimate the value of such work as examinations, consultations, root treatments, relieving toothache and other pains, prophylactic work, treating and filling children's teeth, amalgam and cement fillings and adjusting dentures. Although it usually requires more knowledge, skill and practice and better judgment to perform most of these operations and though they are usually of more importance to the patients concerned both as to their immediate comfort and their future health, yet I venture to say the average dentist actually loses money for the time he spends at this kind of service. As many hours a week are spent at this kind of work, it is most important that every man should check up this end of his practice and see that he is getting a fee which will at least return him the amount per hour which he has decided is necessary to pay his expenses plus his salary.

Te sooner men stop taking into consideration the materials used in different operations and turn their thoughts more to the service they are rendering the patient, the sooner will this blunder be rectified. Broken appointments are another serious loss to many practitioners. There is absolutely no rhyme or reason why any man should be expected to reserve his time for a patient and not be compensated for it when the patient fails to turn up or give adequate notice. It is only in cases of great emergency that the patient should not be made to pay for broken engagements.

Examinations and consultations take time, experience and knowledge, and undoubtedly should be charged for just the same as they are by physicians, lawyers and architects, etc. I am convinced that the great leak in most of our practices is the hours spent from day to day and week to week for which we receive no adequate compensation.

The losses through waste of material and injudicious purchase of equipment and supplies are trivial compared with the loss from time spent without adequate reward.

A dentist who does not make use of a deposit account at his dental depot thereby saving a liberal cash discount, is losing more interest on his money than he can possibly get from any legitimate investment. The expense of keeping a well trained immaculately clad industrious office assistant is money well spent and should return many times her salary. No man can afford to spend his own time attending to book-keeping, telephone, appointments, sterilizing instruments, dusting and a hundred and one other things around his office. The mental effect on patients of seeing a neat, trim, smart, dental assistant looking after everything inspires a confidence which is invaluable to the dentist.

The young practitioner should be especially careful about giving credit as most of the dead-beats turned down by older practitioners resort to the younger men hoping to find them easy marks and I am afraid they get away with it nine times out of ten.

There is no excuse for any man having more than two or at most three months business on his books owing to him at one time. If you wish to avoid misunderstandings and bad accounts take my advice and make it a rule never to commence an extensive operation for any patient, particularly a stranger, without thoroughly explaining the nature of the work to be done and the approximate fee to be charged. If a definite arrangement as to payment can be arranged before commencing the work, so much the better. The fear of losing a patient is very apt to deter a young man from these methods but I have no hesitation in saying that he will gain patients and not lose them by these straight forward business-like methods besides saving himself many bad accounts and much chagrin.

All monies received should be deposited in the bank daily by the assistant and the dentist should never think of putting a cent of the cash receipts in his own pocket if he expects his book-keeping to be of any value to him. His pocket money and personal expenses must all come out of his salary cheque which can be drawn weekly or monthly as found most convenient. When the bank balance exceeds a reasonable amount to provide for current expenses and emergencies, the rest should be either invested in purchasing a home or in some first class security recommended by a reliable financial man.

As I am expected to confine this talk to half an hour, there are many phases of the subject I cannot go into detail on such as book-keeping, buying supplies, etc., etc.

Although no dentist may ever expect to own a Rolls-Royce or live in a mansion from the proceeds of a dental practice, yet with careful attention to business detail in the conduct of his practice there is no reason why he should not make a fair living and save a modest competence for old age. Right here let me say that I am a great believer in almost all forms of insurance for the dentist, such as life insurance, sickness and accident insurance, and personal liability insurance. As a dentist is absolutely dependent upon his own personal activities, it is most important that he should protect himself against loss of time in every conceivable way.

Extraction Technic of Impacted Inferior Third Molar

Ernest Charon, D.D.S. Montreal, Que

(Read before the Canadian Dental Association, Toronto, 1922)

The inferior third molar is impacted more frequently than any other tooth. Where extraction is indicated, the selection of the correct operative technic necessary for its removal demands good judgment. The execution of the technic requires considerable skill. The removal of this tooth is strictly a surgical procedure. It should be executed in such manner as not to disturb the second motar or to cause unnecessary injury to the associated tissues. Structures which may be associated with this tooth when impacted should be kept in mind before, during and after the operation.

The Operation

To relieve the pain caused by the tooth, and quite frequently to avoid operating where an operation is indicated, the tissues overlying the occlusal surface, when in inflammatory condition, are irrigated with antiseptic solutions, and such medicaments as iodine, aconite, campho-phenique, or nitrate of silver are applied. In case of the first attack, temporary relief will usually be obtained by this form of treatment, but, where a number of such attacks have occurred, or where suppuration is established, little or no relief may be expected from such application. The tissues about the tooth are severed with a lancet also in an endeavor to relieve condition, but this usually increases the trouble and affords a favorable field for infection. To postpone the removal of this tooth when it is a source of irritation to the patient, and the conditions cannot be corrected except by its removal, only tends to complicate the operation for its ultimate extraction.

The extraction of the inferior second molar is advocated by some operators to relieve the pain caused by an impacted third molar. It is not advisable to sacrifice the second molar in such case although it is a comparatively simple procedure to extract the tooth. When such extraction is made, it is more frequently a failure than a success, so far as obtaining the desired relief is concerned, and moreover, the subsequent extraction of the third molar may be found necessary. It is therefore better to remove the involved third molar at the outset, and leave a good second molar to perform its function. Some operators extract the inferior second molar to obtain space, but this should be disapproved, as the impacted third molar can be removed in the majority of cases without disturbing the second molar, and the extraction of the inferior third molar should take place to remove the cause and relieve the malady.

Several means have been devised for removing an inferior third molar when it is impacted by its crown impinging on the distal surface of the second molar. The better procedure is to remove the tooth by surgical operation, and avoid the danger of increased inflammatory conditions that may arise as a result of the delay caused by completing the operation by other methods.

Etiology

A careful examination should be made to determine the cause of the impaction, which is probably due more frequently to heavy gum tissue overlying a part of the whole of the whole of the occlusal surface of the tooth, but is sometimes caused by the superior constrictor muscle of the pharynx or buccinator muscle.

Other causes of impaction are:

1. Where the alveolar process extends over parts of the occlusal of the tooth.

2. Where a dense ledge of bone projects over the disto-occlusal surface of the tooth.

3. Where the tooth is so far imbedded in the body of the mandible that little or no alveolar structure is formed about it, the forces of development being insufficient to overcome the resistance oqered by the bony structure.

4. Where the third or second molar is in malposition and there are abnormalities in the form of either of these teeth, as where the crown of the second molar is unusually large in its middle diameter compared with its gingival diameter and engages the third molar below this projection.

5. Where the approxmating surfaces of the second and third molars are broad and flat instead of the oval shape peculiar to normal teeth, which conditions may compel the eruption of the third molar.

6. Where there are supernumerary teeth about the third molar.

7. Where there is not sufficient space between the second molar and the ramus to allow the passage of the third molar.

History and Nature of the Operation

A history of the case should be obtained prior to operating on an impacted third molar. Frequently a patient is under the impression that the operative procedure of extracting an impacted inferior molar is similar to extracting of any other tooth.

Where this idea prevails, and if the operation is expected to be the least complicated, the operator should explain to the patient the character of the operation.

Operative Technic

In giving the operative technic for the removal of the numerous forms of impacted third molars, in the various conditions surrounding them, the most practical procedure will be assigned for the different cases presented. Numerous cases of common occurrence will be described and illustrated by lantern slides. To simplify the presentation of this subject, impactions are classified as *partial and complete.* While it may not always be possible to assign each individual case with certainty to the class to which it belongs—owing to the different phases of the numerous cases presented—a careful study of the conditions surrounding each case will usually present enough similarities to permit a proper classification, and thus enable the operator to more readily outline the plan of operation.

A partial impaction refers to that class of cases where the tooth is not deeply seated in the tissues, and where the position of the crown and its relation to the surrounding structures can usually be determined by an explorative examination, as where the eruption is retarded, a short distance from what would be normal position of the tooth by the soft tissues, osseous structures, or supernumerary teeth, or where, in case of malposition, the tooth impinges slightly on the second molar.

Diagnosis

A correct diagnosis preceding the operation is a very important matter, as the operative procedure will be governed by existing conditions and a correct knowledge of these conditions in each case should be obtained as a guide in properly determining the technic of the operation.

The operator by examining the part of the crown that is visible, notes the position of the tooth as compared with what would be its normal position if fully erupted, and ascertains whether it impinges on the crown of the second molar, determining at the same time whether the gum tissue, when it partially overlies its occlusal surface, should remain undisturbed or whether it will be necessary to make an incision before applying any instrument to remove the tooth. The probable presence of foreign bodies of supernumerary teeth should be determined, the alveolar process should be examined to ascertain if it is in a healthy condition, the interproximal space is investigated to learn whether the blade of Lecluse elevator can be applied between the second and third molar; and the second molar, if it is in alignment, is examined with a view of using it as a fulcrum. If the operator is unable to satisfy himself as to the position of the tooth and the surrounding conditions by an explorative examination conducted without injury to the parts, a radiograph should be obtained.

Choice of an Anesthetic

The selection of a suitable anesthetic should be made in order that the operation may be successfully executed.

Partial Impaction by Soft Tissue

The soft tissue, which is more frequently the cause of a partial impaction than any other factor, will often, when it is heavy and resistant over the occlusal surface of this tooth, retard it at a short distance from its normal position. This tissue when in the shape of a loose flap, often forms pockets for the reception of debris, which will continually irritate the tissue surrounding the tooth, and in most cases this condition, if of long standing, can be relieved only by extraction. Where the examination shows that the crown of the tooth is assuming a normal position, but its occlusal surface is slightly lower than the occlusal surface of the second molar and the gum tissue, in the form of a loose flap, partially overlies the disto-occlusal surface, no attention should be paid to the soft tissue and the extraction should be performed in the same manner as where the tooth is in normal occlusion.

Frequently the soft tissue, when it overlies the major portion of the occlusal surface, can be easily displaced, and does not greatly interfere with the application of the elevator and the raising of the tooth to a point where the forceps can be adjusted without interference from the tissue. In such case, as when the tissue partially overlies the disto-occlusal surface, the elevator is applied without severing this tissue with a lancet previous to the application. If, however, it is observed that the tissue is firmly adherent about the tooth, and will interfere with the application of the instruments and the extraction, the lancet should be used, starting the incision at the contact point with the second molar at about the centre of the occlusal surface and incising distally far enough to expose the entire crown. In some cases, where the tissue is dense around the distal side, it is advisable to partially sever the tissue from that surface. If the operator, while dislodging the tooth, and not having previously lanced the tissue, observes that tissue interferes with the delivery of the tooth and is liable to be lacerated, he should release the instrument and sever the tissue from about the tooth sufficiently to allow it to be released without causing unnecessary injury to the parts. When the crown of the third molar is slightly lower than that of the occlusal plans of the second molar, and is inclining distally, with the soft tissue partially or completely covering the third molar, the method of operating for its removal is the same as for a like condition of the tooth not covered by soft tissue. In such case the lancet should be applied, especially on the distal side, prior to adjusting the elevator to free the parts of this tissue, so that there will not be any interference from it during the extraction movements.

By Osseous Tissue

In addition to the eruption of the tooth being retarded by the soft tissue, the bony tissue also will retard its eruption and interfere with the application of an instrument for its extraction, especially where the alveolus extends over the occlusal surface with a bar of chisel, care being taken to remove enough process to insure extraction, which is then made in the same manner as though the tooth had not been impacted by the process.

By Malposition and Malformation

Where the third molar is in malposition and the crown is slightly lower than the occlusal plane of the second molar, and impinges on the latter tooth, but its position will not prevent the application of the Lecluse elevator (fig. 21) to the mesial surface of the crown, and the gum tissue and alveolus, will not interfere with the liberation of the tooth (fig. 90). The Lecluse elevator should be applied in the interproximal space between the second and third molar and from the buccal side. When the elevator is adjusted (fig. 90) the tooth is loosened by turning the upper end of the handle mesially, followed by a pressure downward on the handle to bring the crown of the tooth upward to a point where it can be directed distally. When the tooth is sufficiently loosened with the elevator, the forceps are adjusted to complete the extraction.

When the crown of the third molar impinges slightly on the second molar, but does not interfere with the introduction of the Lecluse elevator into the interproximal space, and the osseous-tissue on the distal surface of the crown is heavy, as will be shown, which is a radiograph of this kind, a part of the osseous structure on the distal side should be removed before the elevator is applied. The method of procedure is to incise the soft tissue, a little further than the point to which the operator intends to remove the long wall, after which it is cut away with a fissure but from the distal surface of the tooth to such an extent that, when the Lecluse elevator is adjusted for the extraction slight resistance will be met with (encountered). Where the crown of the third molar impinges on that of the second molar to such an extent that it interferes with the introduction of the elevator into the interproximal space (fig. 92) and the soft tissues and the process of the distal surface of the tooth are not interfering factors, that part of the crown of the third molar that interferes with the application of the elevator is removed with a fissure bur (fig. 93).

Where the impingement of the crown of the second molar interferes with the adjustment of the Lecluse elevator, and the soft and osseous tissues interfere on the distal side with the delivery of the tooth (fig. 94), the contact point that impinges on the second molar should be cut away as described before.

Where the crown of the third molar impinges slightly on that of the second molar, and the roots of the third molar are not curved or inclined distally, the usual extraction movements as applied with the elevator will not always loosen the third molar. If after the application of the elevator and the execution of the extraction movements, it is observed that these movements have no effect on the tooth. The forceps should be used and as soon as the tooth has been loosened the elevator should be applied to continue the operation, and the forceps may be necessary to lift it out of its socket.

By Supernumerary Teeth

Cases of impacted third molar caused by supernumerary teeth are not of frequent occurrence.

The operation in such cases is very simple, the removal of the supernumerary teeth precedes the extraction of the impacted tooth.

Complete Impaction

A complete impaction refers to that class of cases where the tooth is deeply seated in the tissues and where the position of the crown cannot be determined with an exploring instrument, being described as follows:

1. Where the tooth is located quite a distance from the occlusal plane of the second molar;

2 Where there is lack of space between the ramus of the second molar for the third molar to erupt;

3. Where the tooth is inclined or in a horizontal position with its occlusal surface directed toward or impinging on the crown, neck or distal root of the second molar;

4. Where the tooth is in malposed in any direction and little can be ascertained of its relation to the other tissues by explorative examination. If an extraction is attempted in any of these cases without a thorough diagnosis having been obtained the operation has many chances of being a failure.

Radiograpic Diagnosis

The diagnosis points to be interpreted from a radiograph of a completely impacted third molar are:

1. Its position as compared with what would be its normal position if fully erupted; 2. The distance of its crown below the occlusal plane of the second molar; 3. Its relative position to the second molar; 4. The amount of this surface involved if there is contact with the second molar; 5. The size of its crown and root, and the division of the roots and their curvatures; 6. The amount of the osseous tissue over the occlusal and distal surfaces of the crown and its distal root; 7. The available space between the second molar and the ascending ramus as compared with size and position of the third molar; 8. The position of the second molar and the amount of the alveolar process supporting it. The radiograph has been a means of position diagnosis and of justly simplifying the operation for the removal of the teeth.

Anesthetic

Where the operation is not difficult and will consume only a short time, nitrous oxyde and oxygen should be the anesthetic, ether can be added. In other words, the latter combination is the most suitable anesthetic, and should be used where the operation will consume some time, or where inflammation is so extensive as to cause temporary ankylosis, or when conductive anesthetic cannot be used.

Complete Impaction by Soft Tissues

Where the tooth is deeply seated and the tissue about it is very deep, and an external examination seems to indicate that, if the eruption is complete, the tooth would be in a normal position, the operator may be tempted to immediately apply an instrument in an attempt to extract the tooth. This would be a doubtful procedure, as experience has shown that in such cases there may be unexpected conditions that would militate against a successful operation, and in all such cases, it is advisable to obtain an X-ray if possible of the part, before attempting the operation.

By Osseous Tissue

Where the tooth is deeply seated and the osseous tissue is over the occlusal surface, the same technic is followed as where this condition exists and the tooth is partially impacted.

By Insufficient Space

Where the tooth is deeply seated and there is insufficient space for the eruption, the crown may be directing distally and the hard tissue partially or completely overlying its occlusal surface, or the tooth may be lying at an angle with the greater part of its crown impinging on the neck of the second molar. If the radiograph reveals that the crown is markedly inclined distally and the hard tissue is dense over the occlusal surface (fig. 158) it presents one of the most difficult forms of impaction encountered with this tooth (fig. 97, 98, 99, 100).

By Malposition and Malformation

Where the impaction is caused by the malposition, which is usually associated with more or less malformation of the third molar and occasionally of the second molar, the tooth may be in position varying from a slight inclination from the perpendicular to a complete horizontal position. The shape and size of the crown, shape and direction of the roots, amount of bony tissue over the distal surface of the crown and distal root, and the position and amount of contact with the second molar, governs the operative technic for its removal (fig 98, 99, 100, 101, similar cases). The method of operating in these cases is to cut away that part of the crown of the third molar that impinges on the distal surface of the second molar, and remove a part of the bony structure on the distal side of the third molar. The part that is in contact with the second molar is cut away with a fissure bur, as in the case of a partial impaction.

Cases Where the Removal of the Lingual Plate is Indicated

Figs. 105 and 110 present conditions where the removal of the lingual plate is indicated. In these cases the occlusal surface of the crown of the third molar impinges on the second molar. The third molar is in many of these cases situated in a position that at first suggests the operation described for cutting away that portion of its crown that is in contact with the second molar and removing the bony structure over its distal surface as a preliminary to its extraction, but the root of the third molar being fused and not favorably inclined upward, and hooked or rather widely separated with the septum between them heavy and dense, would interfere with the delivery of the tooth even if the process and contact points were removed.

Technic

In incision of the soft tissue, a little longer than the length of the roots of the third molar, is made over the lingual side of the tooth and the retractor is placed in position to hold back the flaps of the tissue. A large bar is applied to the margin of the alveolus and the process is cut away, the cutting being continued toward the apices of the roots until the process over the both roots is then removed, as its presence will interfere with the extraction of the tooth.

Where the alveolar process has been sufficiently removed, the retractor is detached and the Lecluse elevator is applied to the buccal surface of the tooth with sufficient pressure to force the tooth lingually through the space that has been created for its exits.

It is advisable to remove enough of the lingual plate to permit unobstructed delivery of the tooth rather than attempt to force the tooth from its position by excessive force applied with the elevator.

An Analysis of the Principal Difficulties in Modern Dental Construction

F. A. French, D.D.S.,

(Read before Canadian Dental Association, Toronto, 1922)

One of the greatest Englishmen of the 19th Century has stated that "Truth is never enforced except at the sacrifice of its propounders, at least they expose their inherent imperfections, if they incur no other penalty, for nothing would be done at all, if a man waited till he could do it so well that no one could find fault with it."

That gentleman is my only defence in presenting this subject for your consideration. I have avoided as far as possible any attempt to force conclusions. My only fear is that I may be misunderstood, this being a difficult subject to discuss and still more difficult to illustrate—I claim no originality. Many methods pertaining to prosthetic procedure have been advanced by different authorities in the past, each claiming originality only to find out later that some one had used these particular methods many years ago.

With the impression technics that we have at our disposal today, it is a comparatively simple matter, even in the more difficult cases, to construct dentures which may be worn with ease and comfort.

The real problems seem to be to construct dentures which are efficient in mastication, pleasing in appearance and which may be worn for an indefinite period without loss of tissue adaptation.

It is an endeavor to point out how these difficulties may be overcome that has prompted this work.

To insure masticating efficiency two essentials are necessary, viz: perfect adaptation of the denture base and a balanced bite.

It is just as important to have the teeth properly antagonized as it is to have the dentures properly seated.

A great deal has been written regarding mandibular movements and many very scientific articles have been and are being published in various dental journals dealing in one form or another with the so-called Anatomical Articulation. It has been studied and discussed from the Geometrical, Physical and Anatomical standpoints until there exists today in the mind of the average dentist a great deal of mystery and obscurity regarding this subject.

The knowledge so far obtained has somewhat outrun the mechanical ingenuity of our articulators, while the capabilities of the best of our articulators seem to be in advance of the skill of most of the men who use them.

The opinion is rapidly gaining ground that, so far as the general practitioner is concerned, the mathematics and mechanics of it is a thing to be forgotten. They are impracticable.

It is not necessary to take a lot of complicated measurements or to use a complicated machine to construct efficient dentures for the average case.

All that the general practitioner requires is to have a good impression technic and a clear conception of just what is meant by a balanced bite.

This slide represents two opposing anterior teeth in central occlusion. When the mandible moves forward to end on occlusion the lower anterior moves along the plane represented by the dotted line.

If the second molars are set to the same plane we have established balance in the protrusive movement.

The same principle applies to the lateral movements. We know from the application of geometry to this subject that the curve of Spee may be or so how are we to determine the curvature of the occlusal plane for a given case.

In an edge to edge set up we can have practically straight line occlusion, as the over bite increases we should deepen the curvature, while on the other hand a considerable over jet, as you will notice here, reduces the incisal plane and the curvature can be reduced accordingly. This illustrates the principle of a balanced bite. An unbalanced bite besides dislodging the dentures in the act of masticating will, by causing excessive pressure at certain points result in atrophy of tissue under these points and thereby bring about an unseating of the dentures. This is one of the reasons why so many dentures become loose.

Some authorities claim that the occlusal planes of the cusps of the teeth should conform to the established condyle paths, while others maintain that you can establish your own cusp formation and in due time new condyle paths will be formed to harmonize therewith.

My experience in practice has been that you can do it either way and in a certain type of mouth develop all the coreness you could wish for from traumatic occlusion. Apparently one important factor has been overlooked, that there is a very definite relation between cusp form and ridge form as well as between cusp form and condyle path.

This slide represents a cross section at the first molar region of two dentures in central occlusion. When the mandible takes a lateral excursion we find this condition. The line of force is at right angles to the cusp plane. Thus giving a lateral thrust to the dentures. The lower, which as a rule has a poorer seating, naturally fares the worst. If we have a ridge formation as in figure ''A'', capable of taking up the lateral thrust all well and good, but if the ridge formation is as in figure ''B'' one which we frequently find, the result will be soreness here and there.

Cusps Trauma may be defined as an inflammatory condition, the result of later forward or backward thrust given the denture while the cusps of the teeth are in moving contact. I have corrected soreness of this nature in a number of cases by reducing the cusp formation instead of relieving the denture base.

The usual procedure in a case of soreness is to relieve the denture over the inflamed area. Where Cusps Trauma is the nature of the soreness it will be necessary to trim enough off the denture base to prevent contact with the tissues in order to obtain relief and the cause still exists.

Other areas of inflammation usually develop requiring further reliefs with the ultimate result that between changes made in the denture base and changes occurring in the ridge form as the result of tissue atrophy the initial adaptation of the denture base to the tissue has been destroyed.

This is another reason why so many dentures become loose in a very short time.

Tissue atrophy with the resultant loss of denture fit may also be caused by interference with the normal blood supply to the tissues covered by a denture, either through excessive border pressure which amounts to strangulation, or through excessive pressure over the anterior or posterior palatine foramina.

It would appear, therefore, that from the standpoint of mastication efficiency and with a view to permanency of denture service, the essentials are perfect adaptation of the base to the tissues without interference with circulation and a balanced bite without Cusps Trauma.

Let us turn now to esthetics and the production of a pleasing appearance in our work so essential, particularly when dealing with patients of the fair sex.

John Vanderpoole, a well known authority on art, has said that "Rules have been laid down by which an ideal standard has been sought to be fixed, the deviation produced by age and sex being taken into account; and while such standards are more or less artificial and not to be slavishly followed to the extent of producing an unnatural uniformity, they certainly are invaluable as expressing a mean which cannot be deviated from to more than a limited extent without transgressing the laws of nature and producing deformity."

Several well known authorities in art, state that the anterior teeth are arranged in the arc of a circle.

It is assumed in our profession that the anterior teeth are arranged in the form of a parabolic curve. Lischer so describes them, and Ottolengui also mentions this fact. Stanton claims that each arch possesses a particular curve of its own and varies with the individual. Another prominent writer states that in order to determine the shape of the dental arch we must take into consideration the shape of the head and face. As I see the proposition and its bearing upon prosthetic restorations, it is apparent that there is some misunderstanding as to the terms used. I believe the writer has reference to the alignment form of the teeth rather than the arch form. Arch form and alignment form have greatly intermingled, so that one half of the profession speaks of one and has reference to the other. Prosthetically speaking the dental arch is that portion of the mouth covered by a denture. Alignment form has reference to the arrangement of the teeth in, on, or around the dental ridge.

I do not believe it is possible for anyone to arbitrarily fix the shape of the dental arch, because nature has done that for us already. The only thing that we can do, when abnormalties present, to alter the shape slightly through the medium of surgical interference or orthodontia.

Dr. A. A. Nelson, of Detroit, has shown conclusively that there is a distinct relationship between face form, tooth form, arch form, and alignment, for in nature and in edentulous patients has noted that there is a distinct relationship between face form and arch form, especially as related to the upper arch. This being true, it necessarily follows that to produce harmony in edentulous cases we must have the same relationship between all four that we have in nature; that is to say, we must use the proper tooth form, and arrange the teeth in the proper alignment to produce this degree of harmony.

From observations and study of this subject he has been able to distinguish three classes of arches and alignment, the same as faces can be classified. They are Square, Tapering, and Ovoid.

In the Square arch the palate is usually broad and shallow and the mandibular ridge is broad in the anterior portion with a very slight curve from cuspid to cuspid.

In the Tapering arch the palate is usually high and inverted V shaped. The mandibular ridge is very narrow in the anterior portion and presents a decided V shape.

In the Ovoid arch the palate is medium high and rounded in the anterior portion of the vault. The mandibular ridge presents a graceful narrow curve from cuspid eminence to cuspid eminence.

In the alignment of the teeth please bear in mind that the chief difference takes place anterior of the first bicuspid and reference is made only to the maxilla as the teeth of the mandible follow the general outline of the uppers.

We are not concerned as yet with the bicuspids and molars, for the reason that the posterior teeth must set over the ridge.

In the square type the alignment of the teeth from cuspid to cuspid is in the segment of a large circle approaching more nearly a straight line than either of the other types.

From cuspid to cuspid the alignment form of the six upper anterior teeth in the tapering type is V shaped, with the incisal edges of the teeth well forward of the cervical. It has been noted of a characteristic of this type that the centrals overlap one another.

In the Ovoid type the arrangement of the six upper anterior teeth from cuspid to cuspid is in the segment of a small circle, smaller than that of the square. It has been noted as characteristic of this type that the laterals overlap the centrals slightly at the incisal but are slightly depressed at the gingeval, leaving the mesial shoulder of the cuspid prominent. The centrals are prominent at the gingeval and in the majority of cases there is a space between the centrals.

The square arch and alignment is found in the square type of face, the tapering arch and alignment in the tapering face and the ovoid arch and alignment in the ovoid face.

I am referring to the pure types. There are blends of these types and especially is this true of the alignment form.

In this regard Dr. Nelson states that there are three distinct types and three blends of these geometric outlines. The blends are the square with the tapering, the square with the ovoid and the tapering with the ovoid. Do not misunderstand this. He does not wish to force the conclusion that the arrangement of teeth should be stereotyped into these alignments.

He is merely presenting basic outlines from which we may start our composition. The deviations are what constitute individualty, just as the portrait artist blocks in all heads alike, using the Greek ideal as a basis from which to start.

Some men contend that there should be other alignment forms as, for example, the blending of the square and the ovoid in which the square would be dominant and the same blend of type in which the ovoid would be dominant. This is nothing more or less than a slight deviation from the pure blend and in those cases to accentuate this domination of a certain type I would use a dominant type of tooth, with the blend. For example: in the square ovoid blend of face in which the square type is dominant, I would select a tooth from the square class and would begin arrangement from cuspid to cuspid along the pure alignment blend, working in such deviations as I desire to produce individuality.

As regards artificial teeth, the opinion is steadily growing that there are too many modifications of the pure type of tooth as well as too many sizes of these modifications.

I believe that we could limit the forms to nine and have three graded sizes of these forms, as for example, small medium and large, which would make a total of 27 moulds instead of 52, as at present in truebyte teeth.

With artificial dentures it is possible to change a little more than one-third the lower portion of the face—that portion bounded by two diverging lines arising at the lower border of the bridge of the nose and curving downward to include the alae and the depressions on either side, portions of each cheek and including the entire chin.

This area includes the main features of expression and any change of contour within this area will produce an effect upon the entire physiognomy and give a different expression to the countenance.

The features outside this area are known to the beauty specialist as ''permanent area,'' while those within are known as variable area. It is in this variable area that lack of harmony between its component segments, one with the other, or of the segments with the permanent area that produces the marked changes of facial contour which characterize different physiognomies.

In the preliminary examination of the face from an esthetic standpoint, with a view to harmonizing the features by supplying the correct "Resisting tension" to the soft tissues with the aid of dentures there are certain prominent features to be observed and their relative position noted in both the permanent and variable area.

The variable area is divided into six segments, as follows:

1. The tip and wings of the nose, including the naso labial depressions and the upper portion of the upper lip.
2. The lower portion of the upper lip or what is known as cupid's bow.
3. The lower lip.
4. The chin in its entirety.
5. That portion of the cheek lying over the bicuspids and molars on the right side.
6. That portion of the cheek lying over the bicuspids and molars on the left side.

These 6 subdivisions are changeable in their relation to one another and also in their individual relation to the features within the permanent area.

It is possible to change a portion of the upper lip the tip and wings of the nose, without changing cupid's bow or the lower portion of the upper lip and likewise the reverse is true.

In the study of the profiles a lack of perfect harmony is frequently noted in the position of the chin.

The lower jaw appears protruded or retruded, with the result that either opening or closing the distance between the arches is often resorted to when in a large percentage of cases the mandible assumes its correct relationship to the facio perpendicular line as nature intended. This is due to the involuntary action of the ligaments and the natural relation of the condyle to the glenoid fossa in the relaxed position of the mandible The appearance of its malposition is due largely to retrusion or protrusion of the soft tissues of the variable area.

In other words, we often err in imagining the relation of the mandible to the maxillae in central occlusion is either too open or too close, because the chin is not in harmonious relation to segments No. 1, 2 and 3, when these tissues in all probability are overstrained or lack sufficient resistant tension due to the occlusion rims inserted for the purpose of securing central occlusion.

There are three general known types of profile, the Straight, Convex and Concave. The Straight profile is the Greek ideal face and is the highest ideal of beauty. It has three points of contact with the facio perpendicular line. The frontal eminence, the middle of the wing of the nose and the mental eminence. The Convex profile has two points of contact with the facio perpendicular line; the frontal eminence and the base of the nose; the chin is slightly receding.

The Concave profile has two points of contact with the facio perpendicular line; the fronted eminence and the mental eminence. The pure concave is rarely seen, but is often found modified by the straight, so that the blend is frequently confused with the pure type.

In securing the relationship of the mandible to the maxilla in central occlusion it is essential that we bear in mind the types of profile—be able to recognize the type to which each patient belongs and strive to keep each within its normal class by not having too open or too close a relation of the jaws to one another.

We should always compare the position of the chin with the staple, permanent features of the face and the facio perpendicular line of that particular profile. In examining the profile of a patient the most important thing is the relative position of the chin to the forehead, zygomatic arches and the bridge of the nose.

It is a noteworthy fact that very little change in the thickness of the peripheral border or the position and inclination of the teeth or slight building up or depressing of certain contours will often beautify to a remarkable degree the appearance of a face that would otherwise be quite plain and unattractive.

In the normal mouth the orbicularis oris muscle is in a slightly contracted state at all times so that any change in the underlying structure will sooner or later be followed by a similar change in the shape and size of the mouth. This is readily seen in persons wearing full dentures, when the dentures are removed the muscle contracts and the mouth becomes smaller.

In the try in of the wax trial dentures when the upper lip appears protruding, resetting the anterior teeth slightly back or under the ridge and thinning down the labial flanges of the wax dentures allows the upper lip to fall into a more graceful and easy pose, leaving the nostrils less broad and open. The upward curve of the nose can be straightened and its puglike appearance removed.

If the lower lip appears protruded, the thinning down of the labial flanges of the denture and in some cases the shortening of the over jet and over bite by raising the upper anteriors will restore the lower lip to a more pleasing position.

When the protrusion is due to the labial inclination of the teeth with no marked protrusion of the lip or upward curve of the nose the correction should take place in segment two. A reduction of this inclination is indicated by straightening the anterior teeth or setting them back a little farther. In other words the incisal edge should not be too far forward of the cervical. This applies especially to the upper arch. There are numerous instances where a pronounced protrusion of the lips with a very unpleasant expression in their management is noted, especially is this true if the occlusion of the anteriors are what may be termed end on occlusion. The fact that the most natural occluding position of the lower anterior teeth is somewhat posterior of the upper permits the graceful curve of the lower lip which is so necessary to the esthetic perfection of the chin, providing of course the labial flange of the lowers does not interfere with this graceful curve.

It often happens that a slight depression of the superior portion of the upper lip with the consequent deepening of the naso labial depressions gives the appearance of protrusion to the lower jaw. If the depression of segment one be not too pronounced, it may be restored by contouring and building up the cuspid eminences and thickening the peripheral margin of the wax trial denture.

This facial imperfection is quite often seen in artificial dentures, and has given prosthetists quite a little trouble in its management.

The position of the bicuspids and molars in their relation to the ridge have a decided influence on segments 5 and 6, namely, that portion of the cheek lying over the bicuspids and molars. If the bicuspids and molars are placed outside, over or inside the ridge, or if the long axis of the teeth point in either of these directions, the contour of the cheeks will be effected but not necessarily the anterior or labial area. Setting the laterals and cuspids in closer or directly under the ridge will invariably result in giving the cheeks a fuller contour, by relieving the tension of the muscular tissues in the anterior portion, allowing them to collapse posteriorily and thus crowd the cheek segments in the second bicuspid and molar regions. Tent poling the tissues with high buccal and labial flanges is of no material assistance in the majority of cases, because the resistance tension has not been restored in the correct places.

In examining the physiognomy of a patient, the head should be in an upright position and in a line with that of the operator and the face studied from different angles while in repose and in action. A careful study of the face in attitudes of expression should be made with a view to determining the relative position of teeth and facial contour.

The value of a careful preliminary facial and profile examination and comparison cannot be over-estimated, for it is the only guide to correct esthetic treatment.

That the laws of harmony govern the arrangement of teeth for the individual case, as do these same laws govern the selection of teeth both anterior and posterior to meet the individual requirements of the case to my mind is a foregone conclusion, and as art in itself is real, yet nevertheless it is governed by very tangible laws which form the foundation upon which to build.

This being true, it is therefore our duty to discover just what these laws are so that by the application of this knowledge to prosthetic restorations we may be able to construct dentures efficient in mastication and pleasing in appearance which may be worn for an indefinite period without loss of tissue adaptation. This is the only motive for the presentation of this paper, whether you agree or disagree with me is beside the issue.

Root Amputation

Patient: Jack Carroll, First Year Dental Student.

Age 25. Patient presented October 25, 1922.

Symptoms—General: Complained of neuralgic pains on right side of face, frequent, severe headaches, intermittent for last three or four years.

Local: Upper right lateral badly discolored, gold foils in M. O. D. discharging immediately above apex.

X-ray No. 1 taken Nov. 4th showing large area and denudation of about half of the cementum of lateral root.

Nov. 13, 1922, Apicoectomy, irrigated through root canal with normal saline. Gauge moistened with campho phenique packed in wound. Formocresol sealed in canal.

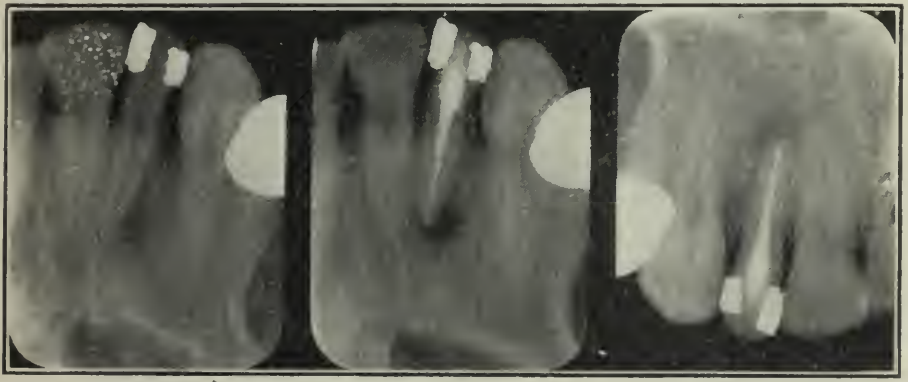
Note.—The canal was not previously opened up.

Nov. 14, 1922. Flushed with normal saline. Dressing of Campho-phenique changed. Oil of Cloves substituted in root canal.

Nov. 15, 1922. Repeat.

Nov. 16, 1922. Root canal filled, free hemorrhage secured about apex. X-ray No. 2.

No further dressing but cavity regularly flushed out with normal saline. Patient suffered considerably for first three days. Frosst's 222 being administered (one tablet each night).



1 2 3

Jan. 31, 1923. X-ray No. 3, showing building in of tissue. Patient declares no neuralgic pains and has suffered only one headache.

International Association of Dental Research

The first annual meeting of the Association was held in accordance with the official programme, on December 21, 1922. Dr. Webster, of the Toronto Section, and Drs. Bunting and Lyons of Ann Arbor, Dr. Hopewell-Smith of Philadelphia, and Dr. Weston A. Price of Cleveland, were present and participated in the discussion.

At the conclusion of the scientific meeting, the members, in accordance with the conditions of the Council's call for the meeting, resolved themselves into a committee of the whole association (also to act for the Council), with Dr. Merritt in the chair and Dr. Waugh as secretary. The recommendations outlined below were adopted unanimously for submission to each absent member for a vote of approval or rejection as the final act in the executive proceedings of the first annual meeting.

(1) *Annual Dues.* To be $1.00 per member, and to be paid from the sectional treasuries.

(2) *Next Annual Meeting.* To be held in Boston, in 1923, at a time and place to be designated by the Boston section, with the approval of the Council.

(3) *New Members.* Drs. Henry Fairfield Osborn, William K. Gregory and Charles F. Bodecker, of New York; C. Jane Fraser, of Toronto; and John A. Marshall, of San Francisco; also, as the Michigan section, Drs. R. W. Bunting, Cyrenus Darling, Chalmers J. Lyons, U. G. Rickert, E O. Scott and Marcus L. Ward.

(4) *Sectional Representatives in the Council.* The fifteen members of the Council for 1923 to be selected by the section, shall be appointed equally among the five sections, New York, Boston, Chicago, Toronto, Michigan.

(5) *Officers.* Honorary President, William J. Gies; President, J. Leon Williams; Vice-President, A. E. Webster; Secretary, Leuman M. Waugh; Treasurer, Arthur D. Black.

(6) *Publication of the Proceedings.* The secretaries shall publish in the *Journal of Dental Research* full accounts of the proceedings of the Associations, and the sections, including abstracts of the papers presented. (The Journal of Dental Research will forward reprints to the members.)

(7) *Copies of the Programmes of each Sectional Meeting* shall be sent to every member of the Association to facilitate attendance of out of town members, and to keep all the mem-

bers informed promptly regarding the activities of the sections.

A ballot for the registration of your formal approval or disapproval of the above recommendations is enclosed. Please return it, signed, as soon as possible.

Yours fraternally, Leuman M. Waugh, secretary,
New York Section.

Saskatchewan Dental Services

The report of dental services conducted in Saskatchewan's rural schools during 1922 by the Junior Red Cross Association reveals not only a large decrease from the previous year in the number of children suffering from decaying teeth, but shows that revenues accruing from nominal fees charged, make the work much less expensive than was first anticipated.

Two motor cars, fitted with the latest dental apparatus are in use by the Red Cross staffs in charge of the work and during the year, 284 school districts in the province were visited, involving examination of 3,877 children. Tooth brushes and paste were distributed in 1,200 cases and the revenue received from nominal fees charged for fillings, extractions and cleanings, amounted in all to $1,690. Free service given on the basis of these fees, for which no payment was forthcoming, aggregated $1,305.50. Members of the staff in charge of the work conducted 284 lectures in hygiene at which 8,250 pupils attended. There were 7,438 operations in respect to teeth with the 3,877 patients treated.

In issuing the statement for 1922, the junior branch, Canadian Red Cross, reviews briefly the circumstances which led up to the establishment of this free dental treatment for the pupils of rural schools. In 1919 it is pointed out, a report by the Provincial Department oof Education, revealed the fact that out of 15,000 pupils in 548 rural schools, 58 per cent. were suffering from infected teeth or gums. In 1920, a census of the schools disclosed that in 1,121 schools, teaching 33,831 pupils, 20,576 pupils or over 60 per cent. were handicapped by teeth and gum troubles.

In consequence of this, the Junior Red Cross, during 1921 equipped a dental car, which was later supplemented by a similar vehicle. One of these machines operates in the northern sections of the province, only in districts where it is impossible for the children to enjoy proper dental and medical supervision; the other car cares for the southern half of Saskatchewan.

The society points to the care exercised in choosing competent personnel for the work and cites as an example of the success which has attended the innovation, that of the 20,576 pupils reported as sufferers in 1920, less than 3,000 were subsequently found to be in need of treatment.

Students of the Royal College of Dental Surgeons who are members of the Masonic order in all parts of Canada have formed themselves into an organization known as the Oriental Club. The club honored Melita Lodge and its Worshipful Master, R. W. Bro. Dr. G. M. Hermiston, with a fraternal visit, taking a special part in the entertainment features. Dr. Hermiston was presented by the students with a rare imported bird to mark their visit to the lodge.

Dr. J. W. Slade, the District Deputy Grand Master, who made his official visit complimented the lodge on the advances made in the short period of its existence.

Winnipeg Dental Society

Preventive dentistry, and, as a foundation, the teaching in the public schools of proper care of the teeth, were urgently advocated at a dinner given under the joint auspices of the Winnipeg Dental society and the Medical society, when Dr. J. G. Meisner, associate of Dr. E. C. Rosenow at the Mayo clinic, delivered an address on "Dental Infections in Relation to Systematic Disease."

Chronic disease often resulted, Dr. Meisner showed, from bacteria harbored by infected teeth. The lecture was illustrated by a large number of excellent and unique charts and slides, and the speaker gave his audience much valuable information as the result of long study and careful experiment. The teeth of dogs are similar with those of men, and through the devitalization and infection of the teeth of these animals, the doctors had, he demonstrated, produced conditions similar to those found in patients.

The need for preventive dentistry and the importance of closest co-operation between the physician and the dentist were stressed by the lecturer.

Interesting discussion, led by Dr. C. Hunter, followed the address and many technical phases of dentistry were brought forward. Among the points especially emphasized was the value of teaching school children the need of proper care of the teeth as a preventive of much disease and discomfort.

The dinner was attended by more than two hundred physicians and dentists, all of whom showed keen interest in Dr. Meisner's paper. Many of them had come from outside parts of the province especially to attend the meeting. Dr. E. Roy Bier, president of the Dental Society, presided.

Dr. Fred. Mallory Goes to England

Dr. Fred. Mallory, one of the best-known dentists of Canada, has decided to take up dental practice at 30a Wimpole Street, London. Dr. Mallory takes with him the good wishes of a host of personal friends and professional associates. He graduated from the Royal College of Dental Surgeons of Ontario and the University of Toronto in 1900 and immediately began practice on his own account, although his

father had practised in Toronto for many years. He has always been a promoter of the best methods of practise, a contributor to dental literature and an ardent supporter of his Alma Mater, on whose committees he has worked for years. When the war broke out, he joined No. 4 General Hospital, University of Toronto, was stationed at Salonika, Greece, for a year, invalided to Malta, thence to England, given charge of fractured jaw department at Westcliff Hospital, Folkestone, later at Kitchener Hospital, Brighton. He was mentioned in despatches while serving in Salonika. As soon as he was discharged from the army, he began practice at the corner of Yonge and Bloor Streets, Toronto. Prior to going to the war, he was associated in practice with Dr. Geo. Caesar, whose practice he finally bought.

Professionally, Dr. Mallory holds membership in the Canadian Dental Association, Ontario Dental Society, Academy of Dentists, Toronto, Academy of Medicine, Toronto, Chicago Dental Society, a frequent attendant at the Illinois State Dental Society, Michigan State Dental Society, New York State Dental Society and American Dental Association.

Dr. Mallory was appointed as the official representative of the Canadian Dental Association to the International Dental Congress held in London in 1914.

During the past few weeks when it became known that Dr. Mallory was leaving Canada to practice in the Motherland, his friends and confreres have been feting and banquetting him as a note of their appreciation of his worth.

Outside of his profession, Dr. Mallory has many interests in municipal and Dominion politics as well as belonging to many social and sporting clubs. He holds membership in the Lambton Golf and Country Club, the Ontario Liberal Club, the Victoria Athletic Club and the Empire Club of Toronto.

His professional friends send with him their good wishes and their good cheer as well as hope that he may often spare the time to return to his native soil to renew acquaintances and enjoy their hospitality.

American Institute of Dental Teachers

The following are the officers of the American Institute of Dental Teachers: President, A. E. Webster, Toronto; Vice-President, Edgar Coolidge, Chicago; Secretary-Treasurer, A. Hoffman, 381 Linwood Ave., Buffalo; Executive Board, Herbert L. Wheeler, New York; Vallan, Iowa; Alfred Owery, Minneapolis.

Teeth and Tuberculosis

Excerpts from the Report of the Saskatchewan Anti-Tuberculosis Commission

Of the 1,346 children examined, 11.3 per cent were five pounds or more under weight for their height and age, and in general appearances also, were classed by the examiners as definitely undernourished.

Teeth

Good health is incompatible with bad teeth and diseased gums. Defective teeth interfere with proper chewing of food, and thus are a cause of undernourishment. They also provide lurking places for harmful germs and their poisons which cause various general infections throughout the body.

Of the 1,346 children examined 47.1 per cent had one or more decaying permanent teeth. (See table No. III.)

Table No. III.

Showing the prevalence of decayed teeth and the relation of diseased teeth to tuberculosis infection among the group of school children examined.

	Prophylaxis			Caries		Abscess		Malocclusion		
	Good	Fair	Bad	Yes	No	Yes	No	Yes	No	Total
Male positive ...	76	162	111	162	187	12	337	97	252	349
Male negative ..	66	116	60	112	130	14	228	67	175	242
Female positive .	139	191	84	211	203	18	396	105	309	414
Female negative	137	157	47	150	191	11	330	81	260	341
Total	418	626	302	635	711	55	1291	350	996	1,346
Per cent. of total examined	31	46.5	22.4	47.1	52.8	4.8	95.9	26.	73.9	
Percentage of Infection										
Total positive ...	215	253	195	373	390	30	733	202	561	763
Per cent. positive	51.4	56.3	64.5	58.7	54.8	54.5	56.7	57.7	56.3	56.6

Table No. IV.

Showing the prevalence of diseased teeth and the relation of diseased teeth to tuberculosis infection among the group of normal school students examined.

	Prophylaxis			Caries		Abscess		Malocclusion		
	Good	Fair	Bad	Yes	No	Yes	No	Yes	No	Total
Male positive ..	14	11	4	17	12	5	2	3	26	29
Male negative ..	6	2	2	9	1	3		1	9	10
Female positive.	86	41	16	77	66	25	118	17	126	143
Female negative	22	13	9	23	21	6	38	5	39	44
Total	128	67	31	126	100	39	187	26	200	266
Per cent. of total examined	56.6	29.6	13.7	54.8	44.2	17.2	82.7	74.5	88.4	

Lack of care of the mouth and decay of teeth seem to bear a direct relation to tuberculosis infection. The reaction rate is 13 per cent. higher in children with badly kept mouths than in others, and higher to the extent of 4 per cent. in those with decayed teeth than in those whose teeth were sound.

Dewey School of Orthodontia

The next annual meeting of the Alumni Society, of this school will be held on April 12th-13th at the Edgewater Beach Hotel in Chicago. The usual high standard of the meetings of this society will be maintained. All interested in Orthodontia are cordially invited to attend these meetings.

George F. Burke, Secretary, 741-43 David Whitney Bldg., Detroit, Michigan.

Montreal Dental Study Circle

A regular meeting of the Circle, took place in the Blue Room of the Windsor Hotel on Thursday, January 4th, at 9 p.m., with Dr. J. Rubin in the chair.

Owing to the unavoidable absence of the lecturer through illness, there was no prepared lecture delivered at this meeting. Dr. H. Halperin, however, gave a short impromptu talk on "Tumors and Cancerous Growths, as evidenced in the mouth," and Dr. A. S. Solomon gave a short talk on the indirect method of casting inlays. Both men gladly answered questions put them by the members.

A donation of $25.00 (twenty-five dollars) was unaminously voted the Canadian Research Foundation to aid in its good work.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

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Dental Organizations in the United States

Since dental organizations in the United States are now reaching some definite form, in which they are likely to remain for many years, it might be of interest to our Canadian readers to know something of our neighbors' activities. Organized dentistry had its beginning in the United States. It was there that the first dental societies were formed, and, by the way, Dr. Arthur Black recently reported that Dr. William Trueman, who is preparing the introduction to the volume of the dental index covering the early periods of dentistry, has found that a dental society was organized in New York City about 1834. This would seem to be at least five or six years before the recognized official organization.

For many years there were two large organizations, the American Dental Association and the Southern Dental Association. Some twenty or more years ago these were joined together under the name of the National Dental Association. At the meeting in California last summer, the association took on the old name again, American Dental Association, and with this change, the journal took on its present name, *Journal of the American Dental Association.*

The American Dental Association is, by all odds, the largest body of dentists in existence. It has a real influence on the profession. Its method of organization is along the lines of the American Medical Association. The membership is close to thirty thousand, and the attendance is upwards of seven and eight thousand at each meeting. Clustered around this meeting are to be found many minor and subsidiary organizations. The American meeting is to the American dentist what the twelfth of July is to the Orangeman. All meetings, agreements and settlings of old scores are left for that occasion. It is the clearing house of the profession. All associations are subsidiary organizations of the National. When a dentist joins his local state, county or city society, he immediately becomes a member of the American Association and pays a fee of approximately six to eight dollars a year, which covers all his society fees, a dollar to the research organizations and subscription to the *Dental Journal.* There is a paid secretary and editor, as well as money enough to pay the expenses of running the organization. It is the large membership which makes this possible.

The National Dental Faculties' Association is an organization of many years' standing. Perhaps there is no other organization which has done so much for raising the standard of dental education as this, and at a time when it meant a great deal to the profession. Dental schools, like all other professional schools, began as private corporations or, in many cases, owned and controlled by one person. The owners of these schools met and decided to agree on certain standards of educational requirements for admission of students and standards of instruction, fees, graduation and qualification. Such schools were run at a profit and hence the students were a necessary collateral. All kinds of means were in vogue for attracting students. As the association began to frown upon certain means of getting students, dissensions arose. Faculties of Universities where the fees of the students were of little concern, because they would get their salaries anyway, were not interested in many of the rules governing the private school. In fact the state or the University senates made the dental regulations and thus were outside of the Dental Faculties' Associations' control. By an arrangement with the National Dental Examiners' Association, no graduate of a dental college could come up for an examination for a state license unless he were a graduate of a recognized dental school, a recognized school being one which had the standards of the faculties' association. This arrangement worked well for years, but finally universities began to think this irksome, so they formed what is known as the National Faculties' Association of American Universities. Thus there have been two Faculties' Associations for ten or more years, both organized for the same purpose.

When the war came on and it became necessary to recruit many dentists and dental students, a standard had to be made by some one. The Department at Washington called a number of dentists in consultation and these set at once to make a standard for dental schools and classified them A, B, and C. Candidates for the army were not accepted from C. schools. Dental education got a severe jerk up to a standard, and at once.

Like Canada, all education is vested in the State and not in the Federal Parliament, except in times of war. Each state has its own dental law and its own dental examiners. A number of years ago these several state dental examiners organized what is known as the National Dental Examiners' Association. This Association is the only one which has any powers and only by co-operation with it have any of the other associations put their regulations into effect.

When the war was over it became necessary to return to civil government and a scheme was formulated which has wonderful possibilities for stability and advancement in the profession. Instead of a dental education council under military direction, there is now such a council under civil government. The council is made up of six members elected from the profession as a whole by the American Dental Association, six from the National Dental Examiners' Association and six from the two faculties' associations. Nothing could be more representative of all the interests of dentistry. The Council has mandatory powers from the legislatively controlled state officials or boards and the educational influences of the schools and virility and worldy wisdom of the profession as a whole is represented in the American Dental Association. This organization represents all the interests of dentistry and is at the same time responsible to the people. It can do what is in the interests of the people and the profession with dignity and respect.

The American Institute of Dental Teachers is an organization begun under the name of American School of Dental Technique. It was furthered by the late G. O. Black and had for its purpose the promotion of dental education by laboratory teachings. Prior to 1890, the method of teaching the technique of dental operations was upon human, vital tissues. This was slow, imperfect and dangerous to patients. Among the founders were Catell, Weeks, Hoff, Morgan and Willmott. Gradually the organization expanded, taking a broader and broader scope until it finally discussed all matters pertaining to dental education except those dealing with dictation of curriculum, length of study, fees charged and conditions of admission, transfer and graduation. These subjects were being taken care of by the Faculties' Associations. They were discussed in the institute meetings but no mandate could be authorized. The Institutes' chief function was to discuss how to teach dental subjects until recently when it gave more attention to what should be taught.

There were commissions on text books, exhibits, dental nomenclature and foreign relations in education. One of its chief and most lasting undertakings was the indexing of all dental literature and its publication. As time went on the institute took on the functions of the Faculties' Associations, leaving to these organizations administrative problems only. Membership in the institute was made up of each dental college in the United States and Canada, which maintained a certain standard. Members of the faculties were known as delegates without voting power.

For years the functions of the two faculties' associations ran along parallel lines, with common interests, but when they had to deal with the dental educational council, it was difficult to determine what proportion of the representatives should come from each organization. Dr. A. D. Black, Dean of the Northwestern University, which was not a member of either of the faculties' associations, proposed that there should be an administrative organization within the institute and composed, for voting purposes, of fifteen members from the Universities' Association and six from the National Faculties' Association. This scheme did not work because it was unfair in representation and did not bring about a dissolution of the two faculties' associations as was expected. All the mandatory powers of the faculties' associations were taken over by the Educational Council and the administrative functions by the Administrative Council of the Institute, thus leaving the faculties' associations with all their traditions and functions of past days gone. Such a happening was not pleasant to either.

While all these things were going on, the Carnegie Foundation came on the scene. It saw where it could be of great value in improving dental educational methods. It naturally had dealings with all dental organizations of both the United States and Canada. The Dental Educational Council of America was making investigations of dental schools for the purpose of classification and, as might be expected, the Carnegie Foundation joined with them. In Canada only, the Foundation officers made a study of dental education. Thus the foundation had intimate dealings with the faculties as individuals and collectively, in the Canadian Dental Faculties' Association, National Faculties' Association and the American University Faculties' Association. Dr. W. J. Gues, the head of the Carnegie Foundation for dental education, conceived the idea that it would be in the best interests of the three faculties' associations and the American Institute of Dental Teachers to join together and form one association to be known as the Association of American Dental Schools. To help to bring this about, the University Faculties' Association held a meeting at Iowa City on Jan. 21st, 1923, and there unanimously agreed to join hands with the other three organizations. At a meeting held at Omaha, Jan. 22, 1923, the Faculties' Associations unanimously agreed to join with the others and on Jan. 24th, the Canadian Dental Faculties' Association similarly agreed. This left the final move up to the Institute. ,A constitution was drawn using the institute constitution as a basis. The Institute at its closing session directed its officers to disband and turn all its effects over to the new organization and to meet with the other component parts of the new organization at Cleveland at the time of the American Dental Association meeting. Up to the present time none of the component parts of the new organization has disbanded, each has all its old machinery in working order except the committees of the Institute.

The Canadian Dental Schools have for fully forty years been honoured by having been admitted to the councils of some of the most important dental associations of the United States. The late Dean Willmott held prominent offices in the faculties' association for years and Dr. W. E. Willmott and Dr. A. W. Thornton have been presidents of the Institute of Dental Teachers. These and other courtesies lasting over many years go to show that true education knows no boundaries.

A Sugar Advocate for Teeth

Sir James Crichton takes a few wild flings at those who oppose the use of sugar because it is bad for the teeth. He speaks of the recent scare and faddists in foods. He says sugar stimulates, above all other things, a free flow of saliva which, he says cleans the teeth. Sugar also stimulates the flow of gastric juice. Jamaica children chew and suck sugar cane almost constantly and have good teeth. This latter statement he made after examining the teeth of children and is to our mind the only statement of fact in the whole article. Sugar cane is a natural product and along with the sugar is the cellulose or roughage required to prevent decay. He said the Australians eat the most sugar of any people and had the best teeth and that Italy used only ten pounds per head and were a poorly developed people. In this fashion he runs the gamut of all civilized races as if his statement of the relative condition of the teeth of all peoples was final. Where did he get such positive data? Such bosh is often served up as information. It looks like an advertisement.

Editorial Notes

Dr. John Mills, Toronto, died January 29th, 1923. Dr. Mills practised orthodontics as a specialty.

A dental service is being looked forward to in the new civic hospital at Ottawa.

The health bureau of the Board of Trade of Vancouver is proposing to start a dental clinic at the general hospital. Whether an all-time dentist will be employed or the dentists of the city divide the work among themselves is not yet settled.

At a recent meeting of the Dental Board of the Province of Manitoba, Dr. H. A. Croll, Souris, was elected president, Dr. J, F. Taylor, vice-president, Dr. C. P. Banning, secretary, Dr. J. F. Morrison, registrar-treasurer.

At a meeting of the Oxford County School Trustees, dental and medical education was strongly advocated.

It would seem that it is almost impossible to mix an investment without including air and, as this is expelled, the surface is roughened.

Dominion
Dental Journal

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ORIGINAL COMMUNICATIONS

Canadian Oral Prophylactic Association

PRESIDENT'S ADDRESS

A. J. McDonagh, L.D.S., D.D.S., Toronto

Gentlemen, another year has passed and we are commencing the twentieth year of our existence. This has been an important year for the C.O.P.A. We commenced it by having very great difficulties to contend with, principally on account of the manner in which our American agents were acting and we have done the best we could under the circumstances.

You remember your directors borrowed five thousand dollars from the bank, giving their personal security for it, in order that we might have a large enough stock in St. Louis to do business with on a large scale. I am pleased to tell you that that indebtedness has been reduced to half the amount. As we have not been able to induce our agents in the U.S.A. to co-operate with us to our satisfaction we have turned our attention, for the present, to developing Canada more thoroughly and I am glad to be able to report that our sales have increased satisfactorily. The sales of the brushes have increased 100% over last year's and that of the dentifrice 50%.

During the first few months of the year we were going behind every month but in the last few months we have caught up with the monthly expenses and I am glad to say we have passed them and in a short time bid fair to be freed from financial troubles. Taking the year as a whole we have spent about six hundred dollars ($600.00) on education more than we made, therefore, we have that to make up in the incoming year. The University Committee kindly gave Dr. Thomson leave of absence to go to the West to address dental meetings and other meetings, during which trip he did an immense amount of good, educational work. Your executive financed this trip which was made during February and March. In October a request came from Nova Scotia and New Brunswick asking that Dr. Thomson make a similar trip through those Provinces. Again the University Committee kindly gave him leave of absence and we financed the trip. In May we had an exhibit booth when the Canadian Dental Association and Ontario Dental Society combined conventions were held. We also held a dinner meeting during the progress of the convention which was well attended.

We sent Dr. Thomson to St. Louis and New York to try to straighten out the brush situation over there, with only partial success.

More and more the dentists are realizing what we are trying to do for the profession and are lending their assistance and becoming members which is a matter of great satisfaction. On the other hand the greater our success the more apt are we to have those who will misrepresent everything we do. Therefore, we must be exceedingly careful not to give them the slightest chance to criticize. I believe we have been careful in the past but we must not relax.

The business and educational work of the Association has been to a great extent taken care of by Dr. Thomson.

I thank the members of the executive and all the members of the association for their support and assistance.

REPORT OF THE EXECUTIVE

Harry S. Thomson, D.M.D., L.D.S., Toronto.

It surely is satisfaction to announce that, despite the business depression that has existed all over our country during the year 1922, I can tonight, for the Canadian Oral Prophylactic Association, report one of the most successful years in the history of our organization—successful both from the standpoint of moneys received to carry on our work and from the educational work which we have been able to do. Increased revenue brings with it increased responsibility, and we have tried to live up to that responsibility to you, as members of the Canadian Oral Prophylactic Association, in proving that we are worthy, our motives sincere, and to the Dental Profession in general all over Canada we have tried to give them what we thought best along educational lines, that we might be of the greatest service. As you are aware, the structure of our organization entirely rests upon royalties received from Hutax Products—

Hutax Tooth Brushes and Hutax Dentifrice. The designs of these brushes and formula for the dentifrice are our property, and are distributed through our manufacturers and sales agents, and for this privilege of distribution these agents give a royalty on each package sold. During the year 1922 our agents, John Hargreaves & Co., report sales of Hutax Tooth Brushes as 100% greater than the preceding year, 1921, and Lyman Bros. report the sales of Hutax Dentifrice increased 50% over 1921. Considering the general business depression, we feel unusually elated that our efforts have been rewarded by such an increase in actual business done

Success in our organization means the opportunity of being of maximum service along several lines of educational endeavor—not only to the members of the C.O.P.A., but to every dentist in Canada. As the entire superstructure of our organization is built upon the foundation of royalties obtained from Hutax products, it is obvious that we should see to it that our foundation is sound and sure. We do not any longer wish to perpetrate our existence on sentiment or on patriotism of members, but we do wish to prove that our products are of the highest standard possible to obtain and worthy of the recommendation and prescription of every dentist on the merits of the products alone. To this end we have put forth our best endeavor to bring Hutax Products up to this standard, and we do not at any time ask any one to prescribe them unless he is sure they are worthy. During the year we have made several changes; our brushes have been brought up to a standard that is the highest—every one is now hand made, wire drawn bound and bone handled. They are made by the most outstanding brush makers in the world, each maker guaranteeing that the Hutax is the highest grade brush they can make in their factory at any price. We have eliminated as far as it is possible, all the objectionable ones which caused us some difficulty during the last few years, and have taken every step that we know of to safeguard that future supplies will be of the standard that we are now striving to maintain. Our Hutax Paste, too, has been changed during the year, eliminating some things in it that were objectionable and adding other things that would make it desirable—with one aim only in view, and that to make it an efficient, harmless, cleansing tooth paste, scientific in its preparation and following as closely as possible the accepted ideas of scientific men from every country who have been watching and studying dentifrices and mouth hygiene —more particularly during the last two years. We believe that in all our products we have established, from a manufacturing standpoint, a standard of excellence worthy of your confidence. The design of the brush still stands out as scientifically correct; and this fact has been publicly stated by some of the most outstanding dentists in the United States and Canada.

There is still a great difference of opinion among authorities, whether a tooth paste should be acid or alkaline; but a careful analysis of all the articles written will reveal that the acid pastes as they are at present made are less desirable, and during this last few months the pendulum is swinging back strongly in favor of alkaline pastes, and a very recent article by Dr. Chillingsworth, Boston, gives conclusive evidence, from scientific research carried out in the mouths of hundreds of boys and girls at Forsythe Institute, Boston, that comparatively, alkaline tooth paste accomplishes what we desire a tooth paste to do.

The price to the druggist, which in former years has been something of a detriment to our products, was adjusted and has in the past year remained constant, and are now sold so that the druggist finds them a reasonably profit producing proposition.

I regret to report that our brush business in the United States during the past year has been quite unsatisfactory. As you know, the Lambert Pharmacal Co. were appointed our agents and due to a change in the personnel of their directorate we have been left high and dry, with apparently no interest in our concern whatever, and what brushes we have sold over there during the past year we have sold actually at a loss. As you know, we went into this arrangement with the Lambert Pharmacal Co., with every faith in the high integrity of their organization and of them as individuals, with great hopes for increases in our revenues from U. S. business. During the year we will have to make some change. What it is we are not yet in a position to state. We are still tied up within the vicinity of $13,000 worth of brushes there, which we expect we will have to take a loss on, in order to liquidate our stock.

Our educational work this year has been successful— even beyond what we anticipated. Commencing the first of the year, 1922, we entered upon a new plan; i.e., in carrying on an educational programme direct to the public, under the auspices of the dental societies or dental organizations throughout Canada. To this end, your Dental Executive on the 1st of February commenced an educational trip of the Dominion from Toronto west to the Pacific Coast. During that period, commencing at Sudbury, Ont., I visited 22 centers, which included all the larger cities, and met the dental societies, gave them a report of the Research work done in the University of Toronto, explained to them our organization of the C.O.P.A.—how we received our revenue and the use we made of it. I then, in turn, allowed the dentists to use me in any way they chose, to carry on any community work they had planned or under way. On this trip I delivered 129 lectures to school children, school teachers and boards of education, women's clubs, Rotary and Kiwanis Clubs, to the students of universities and colleges and normal schools, and meetings to the general public. That this work was appreciated is clearly proven by the letters we have had from dental societies, dentists and individuals, expressing their gratitude and appreciation of just what we did. In fact, it has been stated on more than one occasion that there never was a dental educational campaign carried on with such success as this one of ours in Western Canada. The Public is really thirsty for information on the cause of dental decay and how it may be prevented. The co-operation from the dentists in the different communities was 100%; also from school boards and school teachers. Their enthusiasm and delight with what we had to give was very gratifying. Such a task as this is a hard one, but it is worthy of the greatest effort. The personal satisfaction given to everyone who carries on this work may be the greatest satisfaction that anyone serving the dental field can receive.

This year, commencing November 1st, I made a similar trip to Eastern Canada, on the invitation of the Oral Hygiene Committees of the Province of Nova Scotia, in conjunction with the Provincial Red Cross. This trip was just as great a success as the one in the west. In thirty days in the Province of Nova Scotia we gave 61 meetings; in the Province of New Brunswick, 5. A report, appended, from the Secretary of the Oral Hygiene Committee of the Province of Nova Scotia, gives you, in his words, their appreciation of the service rendered. It is my opinion that there is no way that money can be spent to produce such great good as by coming into actual contact with the people, to whom you want this message put over. This work we hope to extend throughout entire Canada this year, taking in the parts that we did not serve last year. I am appending a report hereto covering in detail both these trips, showing actually the number of lectures given and the people we came in contact with.

The Department of Dental Research work has gone steadily on and the report of that is appended to this report, which I will give you separately.

In May 1921, your Executive conducted an exhibition booth at the joint meeting of the Ontario Dental Society and the Canadian Dental Association. We also gave a report of the work done by the C.O.P.A. during the year at a dinner meeting held in Hart House before an attendance of over 100. We had a most delightful time, some entertainment and a good dinner.

Our membership during the year 1922 has increased by 419 new names on our register, which makes us the largest dental organization in the Dominion of Canada. We hope, before the end of the year to bring that up to 100% of all dentists on our mailing list. When you realize what good can be accomplished by men actively and earnestly engaged in doing the best they can to promote dental education and Oral Health in their community, you will realize how great is the opportunity for the C.O.P.A. The Department of Information, which we maintain in connection with our Department of Dental Research, is a most necessary branch of our work. Through the year we have had some hundreds of requests from dentists covering all branches and phases of dentistry. We try in all cases to tell the dentist where he can procure the information he wishes, and if he cannot procure it we make it a point to get it for him. The value of this work and the service we render is clearly proven by the letters of appreciation we receive daily from the dentists to whom we have been of service.

Your Dental Executive would suggest that we devote more of our energies to the personal contact work with the dentists and the community, and discontinue the loaning of slides and motion picture films, as we have done heretofore. The transportation problem is the difficult one in connection with these, and I feel that that time has arrived when each province should provide its lantern slides and films, through their own Oral Hygiene Committees or Dominion Committees. The cost of the slides is not great and the territory served in each province would be so much smaller as to eliminate the losses in breakage and the inconvenience of having them travel such great distances. I would also suggest that the different provinces should provide outline lectures, through their own Oral Hygiene Committees. The demand for these is increasing each year and I feel that both these matters, lantern slides and lectures, can be very much better handled by the provinces than they can from one central point of Canada serving the extreme ends. I would suggest, therefore, that just as soon as the provinces can take up this work, then the C.O.P.A. discontinue this phase of its activities.

The financial part of the work will be taken up in connection with the financial report, which you now have before you. Our constant aim is to improve our product so that we will be worthy of your confidence, that our revenue may increase, that we may perform our greatest usefulness, and that we may be of service to dentists throughout the Dominion. For the coming year we have great hopes. We feel that we are now in a position to go steadily forward, unhampered by many things that have been holding us back during the last few years, with an assurance that we are honest in our endeavors, earnest in our efforts, and enthusiastic to be of whatever service you may call upon us to perform.

REPORT OF EDUCATIONAL WORK

Harry S. Thompson, D.M.D., Dental Executive of the Canadian Oral Prophylactic Association.

Addresses to Dental Societies: The Sault Ste. Marie Dental Society, The Essex Dental Society, The Sudbury Dental Society, Swift Current Dental Society, The Fort William Dental Society, Medicine Hat Dental Society, Port Arthur Dental Society, Lethbridge Dental Society, Winnipeg Dental Society, Kootenay Dental Society, Brandon Dental Society, Yale Caribou Dental Society, Moose Jaw Dental Society, Vancouver Dental Society, Regina Dental Society, Victoria Dental Society, Saskatoon Dental Society, Calgary Dental Society, Edmonton Dental Society, St. John N.B., Dental Society, Fredericton Dental Society, Moncton Dental Society, Westmoreland Co., Dental Society, Halifax Dental Society, New Glasgow Dental Society, Truro Dental Society, Sydney Dental Society, Kings County Dental Society, Wolfville-Kentville Dental Society, Yarmouth Dental Society, Lunenburg Dental Society, Bridgewater Dental Society, Amherst Dental Society.

Addresses on Oral Hygiene

Lectures on Oral Hygiene have been given to 63 Groups of School Children; 30 Meetings for General Public; 7 Nurses' Clubs.

Addresses to Clubs: To 26 Women's Clubs and Societies; 12 Rotary Clubs; 4 Kiwanis Clubs; 1 Board of Trade; 3 Lions' Clubs; 1 Gyro Club; 1 Electricians' Club; 1 Chamber of Commerce; 5 Church Young Men's Clubs.

Subject: "Service Plus the Vision."

Addresses to Universities, Colleges, etc.: 2 Provincial Universities, 7 Colleges, 5 Provincial Normal Schools.

Addresses on the Need of Dental Clinics and Dental Inspection in Schools: 26 Boards of Education and School Trustees on the importance of this work.

Outline Lectures to help promote community health work: During the year, in answer to requests we have sent out 427 Outline Lectures to Dentists all over Canada.

Total for year 227 Addresses.

Department of Information

This is for your own personal use to keep in touch with the newest things in Dentistry.

Our Department of Information has answered letters with requests for information from 343 Dentists—questions covering from the most minor to the most major operations.

Department of Dental Research

In the Department of Dental Research, University of Toronto, our staff of workers is constantly carrying on scientific experimental work in Cements and Amalgams, Focal Infection and Diet, Calcium Content of Blood and Saliva.

Died From Natural Causes

Reported by Dr. W. S. Madill.

Patient, male, age 63, admitted to hospital Feb 9th, (Walked in). Patient was suffering from gangrene of toe on right foot, arterio-sclerosis and high blood pressure. Patient admitted to hospital to be under close supervision for a few days and to have blood chemistry done.

Consultation between patient's physician and dentist, Feb 12th, relative to extraction of remaining teeth and roots in patient's mouth. There was a previous consultation between physician and pathologist of hospital, also relative to advisability of extraction of teeth. Examination of mouth revealed a number of roots and three or four teeth (14 in all). All teeth, with exception of one, were badly decayed, with considerable recession of gum and looseness, indicating periodontal infection. Majority of roots loose and partly exfoliated. It was decided to extract all teeth following morning, using nitrous-oxide and ether, to be administered by patient's physician. Patient had usual hospital preparation of saline enema and no breakfast. Operation took approximately five minutes. Teeth and roots extracted with no difficulty and no abnormal amount of bleeding. Mouth packed during extraction. Patient returned to ward under anaesthetic, pulse 88, respiration 20. Out of anaesthetic shortly after. Nauseated and vomiting at 12.15. Pulse imperceptible at 12.30. House surgeon called and patient pronounced dead at 12.35. The coroner was notified and, after investigation, decided an inquest unnecessary. Pressure, however, from outside sources, forced a post-mortem examination and an inquest was conducted by Coroner Clendennan.

Dr. T. J. Snelgrove, the family physician, was first witness called and told of examining patient on Feb. 2nd and advising his removal to Western Hospital. Patient was suffering from gangrenous foot. Witness also stated that it was decided that all teeth should be extracted since he considered septic condition of mouth a hindrance to patient's recovery. Patient under anaesthetic five minutes. Witness stated that dental operation was done with considerable ease, due to looseness of many of roots. Asked by Crown Attorney whether he thought it advisable to have all teeth extracted at once, witness stated that it was advisable rather than several anaesthetics due to arterial condition. Witness was positive that neither dental operation nor anaesthetic was responsible for patient's death. Asked by Crown Attorney if witness assumed any responsibility as to extraction of all teeth at one time in view of patient's condition, witness assumed no responsibility but considered that it was entirely up to attending dentist.

Dr. Wm. Magner, pathologist at St. Michael's Hospital, who performed the autopsy, was next called. He stated that deceased was suffering from advanced arterio-sclerosis and that heart and kidneys were in bad condition. There was nothing to indicate that patient had died from shock. Witness stated that deceased might have died at any moment from most trifling occurrences. This case may have been caused by shock. Witness declared that he did not consider death due to shock.

Dr. W. E. Ferguson, pathologist at Western Hospital, was then called and, in testifying, explained that as far as his work was concerned this case proved to be one of malignant hyper-tension. The analysis showed impaired renal functions, blood showing an increase in urin-nitrogen (nitrogen-retention). He explained for the benefit of jury the difference between malignant and benign hyper-tension according to Voltard and Fahr's classification. He also pointed out to jury the fact that the extent of arterio-sclerosis of larger vessels had apparently little effect on shortening of life. The extent of involvement of renal vessels had on the other hand a decided effect, more than any other factor and that death would occur with great suddenness (to this he gave illustrations). He explained to jury that arterio-sclerosis was due to an atrophic degeneration of the median arterial coat, (artery wall having three coats), followed by a compensatory thickening (hyaline intima). The Crown Attorney asked witness if he considered it a safe procedure to take so many teeth out at one time in such a case as this one. Witness replied that he knew of no set rule as to number of teeth to be extracted at any one time and further stated that in his opinion every case had to be decided upon its own merits. The condition of patient, the way the patient took anaesthetic and ease with which teeth were extracted would be some of the main points on which he would base his judgment in such a case. The Crown Attorney further asked him if taking so many teeth out could not at least accelerate death. Witness said this was possible. Witness was then asked by coroner whether his findings counter- indicated the operation which was performed, in answer to which the witness stated that while case showed nitrogen retention which impaired renal function, he did not feel that findings were high enough to have suggested such a cause, instancing cases with similar fingings in persons suffering from ill health who were still pursuing their usual business employment.

Dr. A. E. Webster was then called.

The court wanted an expression of opinion on two questions. Could a person take an anaesthetic and have fourteen teeth removed without having any shock whatever? Answer: There would be some shock though it might not be very noticable. The next question was: Is it good practice to remove so many teeth at one sitting? Answer: It is very commonly done. Those taking the responsibility for the operation have many things to consider. It is many times in the best interests of the patient to give the anaesthetic but once and remove all the remaining teeth rather than give the anaesthetic several times. Taking an anaesthetic is always accompanied with some risk. The idea of dividing the removal of many teeth into several sittings has gained ground during the past five years or so.

The foreman wished to know if such a patient had been presented to the witness, would he have removed all the teeth at once. The Crown Attorney suggested that the question be asked in another way. The answer was that many more facts should be brought out before anyone in the absence of the patient, could determine what he would do. The physician and dentist acted on their judgment after consultation in the presence of the patient which was more likely to be correct than anyone's opinion who did not see the patient.

The writer was then called and stated that, after consultation with Dr. Snelgrove, it was decided to extract all teeth at one sitting. Questioned as to whether it was good practice to extract so many teeth at once, witness expressed the opinion that he did not consider any set rule would apply to all cases. In many cases witness had only extracted two or three teeth at one time but, in this particular case, witness considered the course followed advisable, rather than having several anaesthetics. Also he stated that he left it to the judgment of the physician as to whether patient's condition would permit of operation. Witness could not say what cause of death was. Considerable time was taken up in cross-examination in an attempt to induce witness to admit death from shock.

Dr. Laker, dentist, was then called and stated that in his practice, not more than four or five teeth, and often less than that number, were ever extracted at one time as he considered it bad practice. Replying to a question from the Crown Attorney, witness considered procedure in present case absolutely wrong in interest of the patient. Witness also stated that he always made a thorough examination of physical condition of patient before administering anaesthetic or extraction of teeth.

After being out for two hours and a half, the jury brought in a verdict of "death from natural causes, accelerated by shock from administration of an anaesthetic and extraction of teeth."

In conclusion, it might be added that a point not brought out in the evidence was that dentist was not fully advised of serious condition of patient or fact that patient's possible length of life was not more than about four months. The writer also considers that the physician, in view of the fact that he had been attending patient and knew his condition, should have at least shared equally the responsibility for having all the teeth extracted at one time. And lastly the writer regrets that one of his own profession who did not an opportunity for a complete study of the case, should have made such positive statements on the matter of extracting many teeth at one sitting.

PATHOLOGICAL REPORT

Wasserman	Positive 2. 2. 1.
Blood	Urea nitrogen, per 100 c.c., 42 milligrammes.
	Creatinen, per 100 c.c., 3 milligrammes.
	Chlorides, 45 per cent.
	Blood sugar, .11 per cent.
	Total urine nitrogen, 5.26 grams.

URINALYSIS REPORT

24 hour	420 c.c.
Specific gravity	1026.
Albumen	trace.
Urea	3 per cent.
Pus Cells	few.
Cells	Squam. and Renal Epithelial.
Crystals	Urates.

Origin of the American Dental Association

H. H. Whitslar

The annual meeting of the American Dental Association which meets in Cleveland next September will recall to some of the older members of the profession the leading and forceful characters that organized the Association.

Dr. William H. Atkinson and Dr. Chas. R. Butler of Cleveland were of that class..

The American Association first met in a preliminary convention at Niagara Falls in August, 1859. Dr. W. W. Alport of Chicago was elected President, and Dr. Jonathan Taft of Cincinnati, Secretary. The value and uses of such an organization were discussed and they finally adjourned to meet in Washington, D.C, July 31st, 1860.

At this meeting Dr. William H. Atkinson of Cleveland was elected President, and Dr. Jonathan Taft, Secretary, in which capacity he served seven times until he was elected President of the Association.

There was no meeting in 1861.

The next meeting was held in Cleveland in July, 1862, at which Dr. Geo. Watt of Zenia, Ohio, was elected President.

Thus sixty-one years after the first meeting of the American Dental Association held in Cleveland the spirits of the great men of those days will surely hover over Cleveland again in September and behold the greatest convention of dentists ever held in America.

Dr. William H. Atkinson, who was President at the Cleveland meeting was one of the most extraordinary men the dental profession ever claimed. His versatility was marvellous. He was a student of the natural sciences and microscopy; he made many researches in pathology, therapeutics, and histology. He was a graduate of Medicine (Willoughby University in Ohio), studied dentistry in Norwalk, Ohio, moved to Cleveland in 1853 and associated himself with D. F. S. Slosson, a dentist. He became an "all around" dentist. He was among the early dental clinicians and had charge of the clinics in 1859 at the Indiana State Society.

In 1861 he moved to New York where he obtained a very lucrative practice, his fees being fabulous for those days, but he did much for charity and hospitality.

He organized the New York College of Dentistry, the

New York School of Microscopy, devised sets of gold pluggers and became a very skilful operator.

He was an advisor to the many. His last letterhead gives his title as "Consulting Surgeon."

While he was regarded as eccentric, he was progressive and aggressive; his magnetism was powerful.

In debate he was brilliant, indulging in flights of oratory that only the sophisticated could assimilate.

The writer observed him in the meeting of the American Dental Association meeting at Minneapolis in 1886, when after Luman C. Ingersoll read a paper on "The Duality of the Peridental Membrane," Dr. Atkinson pulled off his coat (it was a warm evening) and said, "It is now time for the fur to fly." This displayed his aggressiveness for debate and the yearning for the assembling of ideas.

Dr. Atkinson was a Spiritualist, and now may his brilliant spirit descend with hosts of other pioneers of dentistry upon the great meeting in Cleveland next September.

Professional Misconduct in Great Britain

Notice Issued by the Dental Board of the United Kingdom

The Dental Board of the United Kingdom after consultation with the General Medical Council have drawn up, and desire to bring to the notice of all persons registered in the Dentists' Register, the following warning regarding certain forms of professional misconduct.

It is enacted by Section 133 of the Dentists Act, 1878, as amended by Section 8 of the Dentists Act, 1921, that:—

> Where a person registered in the Dentists' Register has, either before or after he is registered, been convicted in His Majesty's Dominions or elsewhere of an offence which, if committed in England would be a felony or misdemeanour, or been guilty of any infamous or disgraceful conduct in a professional respect, that person shall be liable to have his name erased from the Register.
>
> The Board may, and on the application of any Medical Authority shall, cause an inquiry to be made into the case of a person alleged to have his name erased under this Section, and if the Board on any such inquiry are satisfied that the name of that person ought to be erased from the Register, they shall forward a report to the General Medical Council setting out the facts proved at the inquiry and the finding of the Board.

> The General Medical Council, after receiving any such report, and after hearing any observations which the person affected or the Medical Authority may desire to make with reference to the report, may make an order directing the Registrar to erase from the Register the name of the person affected.
>
> Provided that the name of a person shall not be erased under this Section on account of his adopting or refraining from adopting the practice of any particular theory of dentistry or dental surgery, or on account of a conviction for a political offence out of His Majesty's Dominions, or on account of a conviction for an offence which, though within the provisions of this Section, does not, either from the trivial nature of the offence, or from the circumstances in which it was committed, disqualify a person from practising dentistry.
>
> Any name erased from the Register in pursuance of this Section shall also be erased from the list of licentiates in dental surgery or dentistry of the Medical Authority of which such a person is a licentiate.

Certain forms of professional misconduct are particularized below, but the Board wish it to be clearly understood that these do not constitute, and are not intended to constitute, a complete list of the offences which may be punished by erasure from the Register; and that by issuing this notice neither the Board nor the Council are precluded from considering and dealing with any form of professional misconduct (as, for example, the giving of false certificates or immorality involving abuse of professional relationship) which may be brought before them. Circumstances may and do arise from time to time in relation to which there may occur questions of professional conduct in respect of which no warning notice has been issued. In such instances, as in all others, the Board and the Council have to consider and decide upon the facts brought before them.

Unregistered Assistants and Covering.

Section 14 (2) of the Dentists Act, 1921, is as follows:—

> For the purposes of this Act, the practice of dentistry shall be deemed to include the performance of any such operation and the giving of any such treatment, advice or attendance as is usually performed or given by dentists, and any person who performs any operation or gives any treatment, advice or attendance on or to any

person as preparatory to or for the purpose of or in connection with the fitting, insertion, or fixing of artificial teeth shall be deemed to have practised dentistry within the meaning of this Act

The practice of dentistry except by persons registered in the Dentists' Register or in the Medical Register is prohibited by the Dentists' Act, 1921, and any person who contravenes this provision is liable to be summarily convicted and fined.

Accordingly the employment by any registered dentist in his professional practice of an assistant who is not registered either in the Dentists' Register or in the Medical Register, if he is permitted to practise dentistry and in particular to do any of the things specified in the section quoted above, is contrary to law; and any registered dentist who has so acted renders himself liable, on proof of the facts, to have his name erased from the Register.

Similarly, any registered dentists, who by his presence, countenance, advice, assistance or co-operation has knowingly enabled an unregistered person, whether described as an assistant or otherwise, to practise dentistry or to do any of the things specified in the section quoted above, renders himself liable, on proof of the facts, to have his name erased from the Register.

Advertising and Canvassing

The practices:—

(*a*) Of advertising with a view to procuring patients, or of sanctioning, or of being associated with or employed by those who sanction such advertising; and

(*b*) of canvassing or employing any agent or canvasser for the purpose of procuring patients, or of sanctioning, or of being associated with or employed by those who sanction such employment;

are in the opinion of the Board and of the General Medical Council, contrary to the public interest and discreditable to the profession of dentistry; and any registered dentist who resorts to any such practice renders himself liable, on proof of the facts, to have his name erased from the Dentists' Register.

Use of Titles and Descriptions.

Section 4 of the Dentists Act, 1921, is as follows:—

(4) *Use of Titles and Descriptions.*—A person registered under the principal Act

(*a*) shall, by virtue of being so registered, be entitled to take and use the description of dentist or dental practitioner;

(*b*) shall not take or use, affix to or use in connection with his premises, any title or description reasonably calculated to suggest that he possesses any professional status or qualification other than a professional status or qualification which he in fact possesses and which is indicated by particulars entered in the register in respect of him.

Any registered dentist who may have infringed the provisions of this section renders himself liable, on proof of the facts, to have his name erased from the Register.

THE PRESCRIBED EXAMINATION

Any person who has obtained registration in the Dentists' Register in virtue of having passed the Prescribed Examination under the Dentists Act, 1921, is warned against making use of any words or abbreviations calculated to give the impression that registration has been obtained by passing a qualifying examination, or that any such person has been admitted to the Prescribed Examination as a student of a recognized hospital or school.

Any person who may have so acted renders himself liable, on proof of the facts, to have his name erased from the Register.

By Order of the Board
NORMAN C. KING.
Registrar.

The Control of Cancer

Frank Billings, Sc.D., M.D., Chicago.

From the priest-physician of ancient times, the medical profession inherited and still retains the high ideals and altruism of the priesthood. This idealism is expressed in the avowed main purpose of physicians—"to relieve suffering and prolong life." Guided by this idealism modern medicine is the accomplishment of the medical profession, sanitarians and other scientists. With the necessary co-operation of an enlightened educated public, the application of known and tried reliable means of prevention has lowered the death rate of tuberculosis of the lungs—the great white plague, fifty per cent. or more, and has well-nigh eradicated typhoid fever, typhus fever, yellow fever, diphtheria, cholera, malaria, smallpox, bubonic plague and other diseases which have killed thousands upon thousands of people in the past. Through the efforts of the medical profession, nobly supported by philanthropic citizens in the education of the public, the death rate among infants and children due to diarrhoeal and other diseases, has fallen in many communities to a fraction of the former mortality. All this has been accomplished by the unceasing efforts of physicians and public health workers in educating the public and in the rational application of reliable methods of disease prevention, and in the utilization of scientific means of treatment.

To-day physicians are fighting another dreadful plague—Cancer. This disease has no terrors for the young, for the death toll of this disease is not taken until mid-life. After the age of forty cancer becomes one of the most potent agencies of the Angel of Death. Under the efficient leadership of the American Society for the Control of Cancer, the medical profession announced that the week of November 12 to 18 was to be a nation-wide "Cancer Week" devoted to the attempt to educate the people to recognize the early symptoms of cancer, in order that its victims may obtain prompt assistance and check the trouble in its beginning when a cure can be effected. When the disease is far advanced, it is always fatal; there is NO LATE cure for Cancer. In the EARLY recognition of Cancer lies the hope of cure!

Ninety thousand people die yearly of cancer in the United States and the number of deaths from this disease is steadily increasing. Many of these lives could be saved if the treatment of the disease were begun in time. To-day ninety thousand people have cancer in an early and curable stage; a majority of these will die of the disease unless they seek treatment in time to be cured.

Is it not still true, as of old, that we are our brothers' keepers? Will you not help this cause by informing yourself of the early signs and symptoms of cancer and by spreading the news to others? We ask you to help these sufferers before it is too late. Above all, inform yourself as to the symptoms of Cancer!

A Questionnaire and Its Bearings

In the *Journal for Dental Research* for March and June, 1922, there appear the first two parts of a questionnaire compiled by Elmer S. Best, on problems concerning pulpless teeth and pulp devitalization, and answered by about forty well-known dentists. Dr. Best has been more fortunate than many who have used this method of obtaining knowledge, and has accumulated a mass of information of considerable interest. The questions are very cleverly compiled, and cover practically the whole area of the most hotly debated subject in dentistry. The answers are necessarily brief, and the reasons for the treatment indicated in each case must chiefly be inferred from the treatment itself. It is significant of the chaotic and unsatisfactory state of our knowledge of the problems centering round the treatment of pulpless teeth, that the reasons given by different contributors are often mutually destructive of each other, though doubtless the varying lines of treatment which are based on these reasons commend themselves to their exponents on the grounds of clinical success. A few salient points in the questionnaire may perhaps interest our readers as affording an insight into the current methods of treatment practised by some of the better-known dentists in the United States.

The first question was as follows: "In the treatment of vital deciduous teeth, where the decay is so extensive that its entire removal would mean the exposure of the pulp, what do you advise and what is your procedure- Also, how do you proceed where the pulp is already exposed?" This deals with a matter of the greatest practical importance. More, perhaps, than anything else in dentistry does the way in which this problem is handled shed light on the operator and his outlook on the subject. It is noteworthy that out of over forty who answered this question only two were in favor of extraction. The majority preferred to retain the teeth and endeavor to save the pulp alive. Where the pulp was not exposed the usual plan appeared to be to attempt to sterilize the infected dentine and so to retain the pulp. Some removed as much as possible of the softened dentine without making an exposure, while others preferred to leave the dentine alone as much as possible, and to use an antiseptic cement There seemed to be general agreement that the pulp had a good chance of survival under these conditions. The Howe method of using reduced silver to sterilize the dentine found most favor; this method, which is used at the Forsyth Institute, has evidently "caught on" in America. Most of the answers to this question are guarded as to the subsequent vitality of the pulp, though hopeful of its continued life. The fact that it will sometimes die is, however, admitted. A few advocated removal of the pulp, generally by local anæsthesia, either by pressure or infiltration.

What procedure should then be adopted is considered in the next question: "In the treatment of deciduous teeth where the pulps have become non-vital and infected, what is your procedure and what do you advise?" The number of those who advise extraction in such a case is fourteen, some with reservations which materially modify the advice, others unreservedly. One dentist, C. E. Kells, while advising extraction at certain ages and under certain conditions, considers that filling treatment may be carried out. He goes on to say that he would expect a sinus to appear, which he considers harmless and less objectionable than extraction: "I have observed hundreds of deciduous teeth with sinuses and have never known any harm to result from them."

It is a little surprising to find so many advocating treatment and filling of septic root canals in deciduous teeth, for in this country the trend of practice has been definitely away from such procedure and in favor of extraction of all septic deciduous teeth. Even the presence of a sinus need not, it would seem, contra-indicate treatment, for one of the contributors advises pumping peroxide through the canals and sinews. Another advocates filling the tooth after treatment and then drilling a small hole hole beneath the gum margin into the pulp chamber. In years gone by, rhizodontrophy, as it was called, was often practised. We had thought that it was one of those bad old methods deservedly relegated to the dustbin, and it comes as a surprise to find it seriously laid down as a routine measure of practice. Reading between the lines of the answers to these two questions, it seems evident that it is the fear of subsequent malocclusion which has biased the majority of contributors in favor of conservative treatment. In others the fear of apical infection has been predominant, and has led to the advocacy of extraction. In some cases both fears have been present, and contended for victory with inconclusive results, the contributor hedging, and, if practising root-filling, doing so without enthusiasm and with full appreciation of the risk. The answers to a question on the treatment of septic permanent teeth with incompletely formed roots follow on much the same lines, and most of those who advocate retention of septic temporary teeth treat and retain permanent teeth not fully formed.

An interesting question which embodies a perennial problem is as follows: "In case the vital pulp is covered with a thin layer of decalcified dentine, what is your procedure?" The answers to this question show remarkable uniformity. Nearly all of the contributors make every effort to save the pulp and leave the decalcified dentine *in situ* after attempting to sterilize it by various methods. The procedure is qualified in several cases by urging the need of frequent examination by X-rays or by electrical testing of the pulp to see if it retains its vitality. Two prefer to remove the decalcified dentine on the grounds that its sterilization is too uncertain a matter, and to risk an exposure of the pulp; if this happens, the pulp should be either removed or capped.

Only one advocates the routine method of extirpating the pulp. The attitude displayed toward the vital tooth and the extreme reluctance to open into a non-infected canal is reminiscent of the former attitude of the surgeon to the peritoneal cavity when every expedient was adopted to avoid opening the peritoneum. The advance of surgery has made this fear nugatory; perhaps by analogy we may hope for similar advances in dental surgery which will make it no longer possible to say with one of the contributors, "In the face of two uncertainties the root-canal operation is the greater." It is probable that the general procedure in this country approximates to that in America in preferring the risk of leaving some doubtful dentine to the risk of opening into the pulp, at any rate, when the dentine covering the pulp is moderately hard and there has been no history of pulpitis. The operation of capping an actually exposed pulp, though far from abandoned in this country, receives little support in our text-books and is practised much less than formerly.

Two questions on bridge-work show that this method of treatment still has many advocates; it is equally evident, however, that it is used with much more discrimination. One question dealt with the age at which bridgework, which necessitated cutting into vital teeth, should be begun. The answers fall into two groups. There are those who do not advise cutting into vital teeth for use as abutments. They point out that there are many alternative ways of restoring missing teeth. Some would compromise and use living teeth as supports, though with obvious reluctance. The other group is prepared to cut into vital teeth, but the majority of the answers do not show any enthusiasm for the procedure. Age is considered an important factor; 16 is the earliest age given, but most contributors would wait until 18 or later. The second question on bridgework is as follows: "In the reconstruction of a mouth, would you advise the removal of one or more vital pulps, if that procedure enabled you to use a more satisfactory type of bridge?" The answers to this show still more clearly the restricted field allowed to bridgework. The majority of the answers are strongly against such procedure. Even those who qualify their objection by occasional circumstances which make it permissible, do so with marked distaste. Two questions as to whether the space left after the extraction of temporary or permanent teeth should be retained by an appliance or allowed to close, show that the majority favor the maintenance of the space by an orthodontic appliance to be followed later by removable bridgework. There might seem to be some lack of consistency between these answers and those to the questions on bridgework, but comparing the answers of each contributor to the different questions shows that a type of bridgework is advocated which does not necessitate cutting into vital teeth.

A question on the method of treatment of a non-vital tooth with apical infection might have been expected, in view of the present tendencies in America, to have showed a large majority of answers in favor of extraction. Actually, most of the replies outline a method of conservative treatment though often with important reservations. The reduced silver nitrate method of root-filling is favored by many, some advocating ionization in addition. To deal with the infection at the apex, a few advise curettage and amputation at the apex. One contributor, speaking of root-dressings, thinks that a mistake has been made in leaving them in too long, and recommends in place five or six daily treatments! Root resection receives fuller consideration in the answers to another question. Nine out of forty answers condemn the operation as lacking in permanency. Many of those who practise it, do so only occasionally, and without any high hopes of its ultimate success. Practically, all limit it to the anterior teeth, some excluding the premolars, while others only do it on the maxillary front teeth. There seems no doubt that the enthusiasm for the operation is on the wane.

Another important point is raised in a question as to whether the socket of an infected tooth should be curetted after its removal. Surgical extraction, as it is somewhat arrogantly called by its exponents, is beginning to be talked about in this country, though, so far as we know, it is not as yet frequently practised. The literature on it is already extensive and lacks nothing in either force or dogmatism. Out of thirty-nine answers, twenty were whole-heartedly in favor of curettage, though in some cases with reservations. Twelve gave a qualified approval to curettage; that is to say, if the granuloma came away with the tooth, it would not be necessary to curette. Only seven were opposed to it. These are striking figures, for, as the answers to other questions show, the contributors include dentists of widely differing views and many who are by no means extremists. The identity of those who answered is given, and shows that many of them are men of moderate views. Curettage represents the latest vogue in dentistry and perhaps a few years will see it receding from its prominent place, as so many other methods of treatment have done, though leaving behind some residuum of solid gain to the profession.

Many other questions are included in the questionnaire, but these we have mentioned represent the really vital and contentious questions which are agitating the minds of dentists today. It would be of great interest if a similar series of questions could be circulated to representative dentists in this country. We should probably find that some of the methods widely practised in America are little in vogue here. It is possible, however, that the grouping of the answers would be similar, though more moderated and less sharply contrasted. It is certain, however, that any such questionnaire would show that English dentists are quite as much alive as their American brethren to the problems which centre around non-vital teeth and the difficulties attendant on the solution of those problems.—*The British Dental Journal.*

Prophylactic Odontotomy

The Cutting into the Tooth for the Prevention of Disease

Thaddeus P. Hyatt, D.D.S., Brooklyn, N.Y.

In considering the procedure which I desire to present for your consideration there are several important facts which I believe are practically accepted by all members of our profession and which must be borne in mind as I read my paper. These are as follows:

First. In its relation to decay, a tooth is divided into two parts: (*a*) That part which is susceptible to decay, and (*b*) that part which is practically immune to decay.

Second. Decay starts at the periphery of the tooth and travels pulpward.

Third. The influence of decay precedes decay and is invisible to the naked eye. Its presence is known from microscopic study of decayed teeth. Its entire removal is never certain and at the present time there is not any positive or scientific means of knowing if we have removed it all.

Fourth. The presence of the influence of decay under the most perfect filling is always dangerous and it is an ever-potent possibility for the beginning of new destruction to the teeth.

That certain parts of a tooth are practically immune to decay has been clearly shown by Dr. Black and this has led to the practice of "Extension for Prevention" or, in other words, extending the walls of the cavity out from the area of susceptibility into the area of immunity.

The areas of susceptibility can be divided into: susceptibility because of location, and susceptibility because of anatomical construction.

Examples of susceptibility because of location are the interproximal surfaces.

Examples of susceptibility because of anatomical construction are the fissures and pits which are mostly found on the molars and premolars.

While malnutrition may increase the susceptibility of teeth to decay, it is doubtful if it makes susceptible those parts of the teeth which are known as being immune to decay. In other words the immunity of certain parts of the tooth is not endangered by malnutrition. The only danger to these immune parts is the extension of decay from the already susceptible areas.

Reduction of vital resistance through malnutrition increases the rapidity of tooth destruction in the areas of susceptibility and from here it may extend and destroy the entire tooth.

Anatomically the occlusal pits and fissures of molars and premolars are susceptible to decay, because of faulty formation or the inability of keeping them absolutely free from the lodgment of bacteria and food débris.

Dr. H. B. Butler, of the United States Health Service, made a study of 1,000 cavities in the first permanent molars. He found 877 were occlusal, 110 mesial, 8 distal, 3 buccal and 2 lingual. According to these figures, occlusal cavities are seven times the number of all cavities in all other surfaces added together.

These figures should clearly show us that the point of attack for the prevention of dental caries is the occlusal surface.

As dental decay always starts at the periphery, or on the outside of the tooth, and then travels inward toward the pulp *it must be blocked at the starting point* if it is to be combated successfully.

We must cut away this susceptible part of the tooth before decay has started and fill it with a material not susceptible to decay.

We must start our campaign for preventive dentistry on the outside of the tooth and not only on the inside of the body.

This campaign has practicability and possibilities for immediate action with the greatest promise of desirable results.

Cavity preparation and the procedure for fillings are thoroughly understood. It is not necessary for me to describe them. My purpose is to show you *why* we should cut away these occlusal fissures and fill them *before* decay has started, and not how to fill them. I do, however, suggest the following: As soon as these teeth have erupted so access can be had to the occlusal surface, prophylactic fillings should be placed there. This can be done by carefully cleaning and drying the fissures. A fine pointed explorer is used to aid in the cleansing. Wash off the surface with warm water and hydrogen dioxid. Then carefully dry the tooth. Cement, such as oxyphosphate of copper or silver cement, is then worked down into the fissure with a fine explorer and the surplus wiped off.

When the tooth has erupted sufficiently, apply a rubber dam. Make a class I cavity. The required outline form will bring the walls of the cavity within the area of immunity. Sufficient depth should be secured to obtain the required resistance. A slight undercut will give sufficient retention. Our work is simplified because there is no carious dentin to remove. If amalgam is used, it is advisable to burnish the filling at a subsequent sitting. This will secure a smooth finish and good marginal adaptation at enamel walls.

Why should we wait until decay has started? We know the difficulty of following decay to its ultimate extent or removing that part of the dentin which has been influenced by the presence of decay.

We know the difficulty of detecting the first stages of decay. Dr. J. Leon Williams has shown that "acid effects penetrate the entire thickness of the enamel before there is any sufficient breakdown of the surface to be detected with the finest exploring point.*

We also know that many times when we begin to excavate what we think is a small cavity we find it has extended far into the dentin in every direction. We know what will happen if every particle of decay is not removed. We do not know, however, how far the influence of decay has penetrated and affected the seemingly sound dentin.

On the other hand, if we cut into the fissures of a sound tooth, we shall not deal with decay in any form. With the rubber dam, clean instruments, thorough removal of all débris, the cavity will be clean and practically aseptic. A thin solution of carbolized resin or cavity varnish can be used to paint the surface of the cavity, after which it is thoroughly dried with warm air.

Judgment is to be exercised in deciding whether the occlusal fissures of molars are to be followed to and on the buccal surface. As only 7 per cent. of buccal surfaces have cavities, it can readily be seen that the necessity for this extension is not very often needed.

Because susceptibility of the interproximal surface does not entirely depend upon the anatomical or faulty structure of the tooth as it is found upon the occlusal surface, we may, with clear conscience, very largely leave the care of this surface to the patient. We must, however, instruct and teach the patient how and why they should keep these interproximal surfaces particularly clean as well as give proper care to the mouth as a whole.

I feel that the occlusal surfaces of first and second molars and second premolars are our responsibility. Knowing as we do that approximately 70 to 75 per cent. will decay

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*Williams, J. Leon: *Journal of Dental Research, 1919, Vol. i, p. 24.*

sooner or later; knowing too, that in many cases no amount of right cleansing will prevent their decaying, why should we not bravely and conscientiously meet the situation that confronts us and go to work and cut out and fill these pits and fissures in the occlusal surfaces of these teeth before decay has started; so they may have a fair chance to live in health and soundness and thus render to their owners the aid and service they were created to perform

Some of us can do this in our private practice, but all should be sustained and supported in this work by the official indorsement of our profession so that this procedure may be adopted in all public dental work, such as in the public schools and elsewhere. This is necessary for the reason that for ages past the world at large and the dental profession have only thought it necessary to fill teeth after decay has started.

Dr. Darby.

It is my practice to probe the sulci in the molars as soon as they are erupted, or as soon as the child is placed in my hands, and if the finest probe will enter the fissure, I cut it out with a small bur and fill it after the following method: After it has been prepared, I swab it with a saturated solution of silver nitrate, and then fill with Dr. Ames' black phosphate of copper cement. Let me tell you just how I prepare for it. A piece of rubber dam with just a suggestion of vaselin smeared upon its surface is laid on a tray within easy reach. My assistant prepares the cement, the cavity is wiped dry of the silver nitrate. After the cement has been worked into all the sulci I draw my index finger over the rubber dam that has the film of vaselin upon it and press with my finger the cement into every part of the occlusal surface. The cement soon hardens, and the excess is removed. I consider that surface safe for a long time to come.

J. Leon Williams, in discussion of Dr. Hyatt's paper said: And the first thing I wish to say is that Dr. Hyatt has somewhat weakened his own position by speaking of "cutting into sound enamel." If by "sound enamel" we mean perfectly calcified enamel tissue, then I have to say that in all the specimens I have prepared during fifty years' study of the subject I have never found a tooth in which the enamel was perfectly calcified on the morsal surface. And, I will say further, if by perfect calcification we mean enamel that is impervious to fluid, then I do not believe that there is any such thing as perfect calcification on any surface of any tooth. This may sound rather radical to many of you but the statement is backed up by an overwhelming array of facts. Dental caries is not, primarily, the result of defective tooth structure. Let that fact be repeated until it is more fully recognized than it is to-day. Defective structure is a *predisposing* cause, but in the absence of the active or exciting cause very defective teeth will not decay.

In one of the last papers which Dr. Black wrote he said: "We cannot stain the body of normal enamel with any staining agent we know." I said substantially the same thing many years ago, but I know now that I was mistaken. I have many mounted sections of enamel, ground from the finest specimens of teeth that I can find, which are deeply stained with nitrate of silver solution. In nearly all these specimens the teeth were stained in bulk before being ground. The rapidity with which the stain will penetrate the enamel varies greatly in different teeth, but forty-eight hours is usually a sufficient length of time for this staining agent to completely penetrate the finest enamel. It may be well to note, in passing, that these results completely confirm the physical experiments on the permeability of enamel as reported by Professor William J. Gies.

Now, it seems to me the important point in this connection is this: It is highly probable that the acid of decay will slowly penetrate these channels which are present in all teeth, especially near the surface of the enamel. In nearly all instances it is found that the stain penetrates much more rapidly on the masticating surface of teeth than elsewhere, except in those cases where the acid of decay has already penetrated the proximal surfaces.

It is, therefore, the most certain and sensible form of insurance and a sound economic proposition for the patient to have the defective structure, which always exists on the masticating surface of the teeth, cut and filled as soon after the eruption of the teeth is possible.

The plea that the teeth may not decay and that the patient should have the benefit of the doubt applies, with much greater force, to all forms of insurance, because the chances that the teeth will decay are greater than the risks in any other form of insurance that I know anything about. —*The Dental Cosmos.*

Teeth of Viennese Children

In the issue of the *Journal* for December 1, we referred briefly to a paper by Mr. Sheldon Friel on the "Effect of the War Diet on the Teeth and Jaws of the Children of Vienna," which appeared in the *International Journal of Orthodontia* for September. Mr. Friel, with commendable public spirit, went to Vienna for the express purpose of investigating the dental conditions of the children. His investigations were carried out with great thoroughness and form a suggestive corollary to the work of the investigators who have noted the physical condition of the children, but have not generally taken any notice of the teeth. The careful statistics in Mr. Friel's paper should be studied by every one interested in the dental conditions of children, especially as they do not lend themselves easily to a summary.

Mr. Friel's findings fall into four main groups. Firstly, the time of eruption of the teeth; secondly, the amount of dental caries; thirdly, the amount of hypoplasia; and fourthly, the incidence of malocclusion. The special significance of the data lies in the fact that it shows the dental condition in a population which has suffered very severely from the effects of the war. The dietary of the children and of the mothers during pregnancy was markedly defective. If the structure of the teeth is influenced by the diet during calcification, and if defective structure is a predisposing factor in dental caries, then we might expect that an examination of the teeth of children in Vienna would show some confirmation of these hypothesis. Mr. Friel's figures of the eruption of the deciduous teeth show a marked delay in the hospital children, in whom rickets was very prevalent, as compared with the children attending the child welfare centre, who represented a relatively healthy class. The dates of eruption of the permanent teeth are shown graphically and enable an interesting comparison to be made with the figures obtained by W. W. James and A. T. Pitts in 1912. Mr. Friel's figures correspond very closely with those of James and Pitt. An interesting point in the investigation of the latter writers was that the maxillary premolars erupted before the mandibular premolars, whereas in the case of the incisors, canines, and molars, the mandibular teeth erupted first. Though individual children often show a variation from this rule, it was found to be true of a large number. The authors could not give any reason for this variation in the case of the premolars. Mr.

Friel's figures show very clearly that the same is true of Viennese children. Hypoplasia of the teeth, both temporary and permanent, was very common in Vienna. Accurate statistics are hard to come by in this country, but the incidence here is certainly much lower. A. T. Pitts found hypoplasia of the deciduous teeth to be a rare condition in English children; he did not estimate its frequency at more than one per cent. at the most. This, of course, represents visible hypoplasia, and does not take into account the microscopical defects described by Mrs. Mellanby as being common. Pitts suggested in his paper that, if the experiments of Mrs. Mellanby on puppies could be applied to man, then some increase of hypoplasia of the deciduous teeth might be found among children on the Continent, where it was certain that the material diet was deficient in fat-soluble A vitamines. Mr. Friel's paper verifies this suggestion, and to that extent affords support to the views of Mrs. Mellanby. We are still a long way from a full explanation of the ætiology of hypoplasia, but a good deal of light has been shed on the subject in recent years. The fact that hypoplasia appears to be associated with many quite unrelated conditions would suggest that there may be some common factor as yet undiscovered. It is certain that the clue to defective calcification will be found in the mechanism regulating normal calcification. Could the true cause of hypoplasia be discovered, it might shed valuable light in return on the normal metabolism of lime-salts in the body and their part in forming calcified tissues.—*The British Dental Journal.*

The New Regulations in Quebec

It is claimed that the English-speaking dental student faces a difficult proposition as a result of the new regulations of the College of Dental Surgeons of Quebec. The dental course at McGill as elsewhere, consists of four years dental and medical study. Admission to the first year is possible on junior matriculation as for other faculties of the university. The College of Dental Surgeons has decreed that, if the student intends to practice in Quebec, he must pass an examination set by the College in six classical and seven science subjects. Instead of this he can take a preliminary year in Arts. After 1922 the prospective student must take two preliminary years in Arts, after 1924, three years, and after 1926, four years. After 1928 he must hold a bachelor's degree before he enters upon dental studies.

The English-speaking student and the French-speaking student face different situations as a result of these regulations. The French degrees of B.A., B.S., and B.L., can be obtained at the classical colleges of the province, whereas an English B.A. or B.Sc. must be obtained at a university. University education is admittedly much more expensive to the student than the classical college education. Moreover, the French B.S. and B.L. are not quite so difficult to secure as the French B.A., which combines the two. The English B.A. has no such younger brothers, the B.Sc. being really a twin of the B.A.

There is no claim on the part of McGill or anyone else interested in the question that the French system of higher education is in any way inferior to the English system, or that matriculation or graduation requirements are easier to French-speaking students than to the English. The regulations of the dental college, however, seem to be based entirely on the French classical system, and English-speaking dental students maintain that they should not be forced to gain their dental training at much greater odds than students in other provinces.

All provinces except Quebec have consolidated their dental regulations under the Dominion Dental Council of Canada. This council also sets an examination independent of universities, but it is of a different type to that set by the Quebec College. Junior matriculation admits to dental study.

There are only four dental schools in Canada: Toronto, Montreal, McGill and Halifax. Toronto has by far the largest registration. University of Montreal has a fine school with about 200 registration. Halifax has a very good but small school. McGill has the newest and most expensive buildings and equipment, and what is declared to be the finest hospital-clinic organization in America, with a registration this year of 121.—*Montreal Gazette.*

Montreal Dental Study Circle

The regular February meeting of the D.S.C. was held in Salons A and B of the Mount Royal Hotel and took the form an all-day clinic.

Dr. Sam'l Bass of New York was the clinician and lecturer. The morning was devoted to Removable Bridge work at which clinic Dr. Bass pointed out the uses of the various attachments, emphasising the use and details of construction of the cast clasp and saddle.

After a short recess during which the executive members entertained Dr. Bass at luncheon, the clinic was resumed. The afternoon was devoted to Fixed Bridge-work, special emphasis being put on the three-quarter crown. Dr. Bass detailed particularly the construction of the latter attachment. The construction of the pontics was also clearly explained.

The regular meeting was opened in the evening, when Dr. Bass delivered a lecture on "Inlays and their Construction," bringing out the underlying principles of success in inlay work.

A clinic on inlays followed and was thoroughly enjoyed and appreciated The work was outlined in detail, and, as was the case in the earlier clinics, was very ably demonstrated by models and illustrations.

His knowledge of his subject and his ability to deliver an interesting and constructive clinic can best be judged by Dr. Bass' audience. Practically every member spent the entire day and evening with him Only those were absent who were too ill to leave their homes.

The members of the Circle were enthusiastic in their praise of Dr. Bass and his work. One is safe in saying, that Dr. Bass and his type, who so unselfishly give both their time and the advantage of heir greater experience to their less fortunate professional brothers, merit more than words can express. Yet Dr. Bass no doubt feels amply repaid to learn that he has done much to raise the standard in his line of work, and instill a desire to improve.

These sentiments were ably expressed by Dr. A. S. Solomon in moving a vote of thanks. Dr. M. Gold, in seconding this vote of thanks, expressed himself along similar lines.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

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Make an Honest Diagnosis

At this season of the year, and especially in cities where there is little snow but an abundance of dust flying in the gusty winds of March, many patients consult dentists for pain in the upper first molars and second bicuspids. During periods of epidemics of flu, such pains are frequent. If all the teeth are vital and none decayed, a diagnosis is not difficult but if the patient is advancing in years and has many decayed teeth as well as large fillings and crowns, the problem is difficult in the extreme. Some times the teeth complained of become sore to bite upon and are sore to percussion.

A young man of twenty-three consults a dentist for the first time, complaining of pain in the region of the upper first molars. For the past few days, he said, he had a severe cold, especially in the head and face. The teeth were sore to bite upon. Examination revealed twenty-eight perfect teeth with slight accumulations of black calculus at the necks of several. There were many pits and fissures deep enough to allow an explorer to penetrate two or three m.m. What an opportunity for a quack dentist or an ordinary wolf who looks upon all patients as legitimate prey! A young man, ignorant of dentists, with toothache, pyorrhea and cavities in his teeth. A chance to place at least a dozen fillings, cure pyorrhea by grinding the ecclusion of his beautiful teeth, scrape and scratch the necks and cut the gums until they bleed, supply a long bottle of medicine as well as tooth brushes and pastes and perhaps devitalize the pulps of his molars.

Such a case teaches us that every tooth that pains doesn't need to lose its pulp, and every tooth that is sore to bite upon does not have a non-vital pulp in it, Nor does every fissure or defect in a tooth need to be cut out and filled, nor every little collection of calculus mean a big treatment for periclasia.

Just as soon as this young man's rhinitis subsided, the pain and soreness of the teeth subsided also. The apices of the roots of the upper first molars are often so close in contact with the inflamed mucous membrane of the floor of the atrum that the pulps and peridontal membrane become involved. A careful removal of thte serumal calculus without injury to the soft tissues or scraping the cementum is all the treatment such a patient requires. And as for the defects, they need nothing but frequent examination from an honest dentist.

Rickets and Tooth Decay

Dr. Edward A. Pork, New Haven, says lime salts can be caused to be deposited in the bones by (1st) the administration of cod liver oil; (2nd) by the direct rays of the sun; (3rd) by starvation; (4th) by feeding the proper quantities and proportions of salts so as to preserve the normal relations of the salts in the blood. Each of these facts is illustrated in micro-photographs of bones from animals. In closing, the author makes this statement, "I believe, if pregnant women received ample, well-balanced diets, in which green vegetables were abundantly supplied, and cow's milk were regularly taken and they were kept a sufficient part of their time in the open air and the sun, and if their infants were placed in the direct rays of the sun for a part of each day and were fed cod liver oil for the first two or three years of their lives, more would be accomplished in regard to the eradication of dental caries than in all other ways put together, and rickets would be abolished from the world."

Dental Specialists in Small Cities and Large Towns

One often wonders why the specialist in dental practice should always locate in a large city. This is not so in medical practice because there are to be found surgeons, ophthalmists, throat specialists, etc., in the smaller towns and cities. These men gradually develop skill along a certain line of practice and, as a result, their confreres and the public get to know it and send their special cases to them. Besides they often have offices in adjoining towns where they visit special days. By this method the people in larger areas may have the services of men who have given special study to some field of medicine.

There is surely no objection to this same method being applied to dental service A town up to ten thousand cannot support an orthodontist but three towns closely situated would give an orthodontist all he would have time to do. It would be too expensive to keep up three offices but there is no good reason why an orthodontist might not have a room in one of the local dentist's offices which he might use two or more days a week. The special equipment for this work is not large and might be carried with the dentist or stored out of the way during the days absent and thus leave the room free if the local dentist might wish to use it. As a matter of fact many dentists have an extra room and equipment that might be used for this purpose.

If orthodontia could be so practised, so could peridontia and exodontia. There are many dentists who have not the time to reach on their cases of peridontia and orthodontia to whom this scheme might appeal. Small cities or good sized towns adjacently situated could be visited by motor car or trolley or train, two days a week each, with great advantage to all concerned. The public would be served at less cost than by sending them to large cities, more would be served and, in most cases, better results obtained. One could name several contiguous groups of cities and towns in Ontario where such a plan of dental service would be of great value.

A dental course that does not lay a great deal of stress upon a proper diagnosis is lacking in a very essential part, likewise a medical course that does not provide a course in dental pathology is lacking.

Dental Economics

We quote the following from "Dental Facts":

"It is clearly obvious that it is just as much a part of the dental supply business to supply the dental profession with business advice or business training as it is to supply dental equipment or other material to the dental profession."

This quotation is placed in italics at the heading of a department and under it are discussions of business principles as applied to dental practice. When one studies this heading it implies a great deal. In the first place, it implies that dentists have not been taught economics and that they do not know how to conduct a practice or to do ordinary business. In years gone by, before the subject of economics became a part of the regular course in dentistry, there might have been some reason for the implication. But just why dentists supply companies should feel themselves charged with the responsibilities of supplying the dental profession with completing a dentist's education is hard to understand. Does the grocer feel it his responsibility to give instruction on dietetics because he sells food stuffs? It looks more as if supply companies believe they can best protect their own interests if they give the instruction on how to conduct a practice. If this is carried to its logical conclusion, there is a kind of business manager of the dental office who has not a dental license, and under such the patient is having his dental needs attended to or directed by a business concern and not by a professional man. Such is contrary to the law in Ontario. There are a number of young men in dental practice who are so much tied up to supply houses that their practices are directed from without. They are to all intents and purposes similar to what used to be known as "tied houses" under the hotel system of a few years ago. The hotel keeper was only an employee of a brewery or distillery though the license was in his name. This is bad in principle because the holder of the license is not free to act on his own judgment.

After many years of observation of dental practice and dental supply business, one might be permitted to advise dental supply companies, since they are keen to get into educational work, to establish a department advocating temperance, because they lose more by the folly of intemperance than from all other causes combined. No one will dispute their right to undertake such a laudable object.

The Cutting out of Undecayed Fissures as a Prophylactic Measure

In this issue we print excerpts from a paper appearing in the March Cosmos as well as some remarks of Drs. Darby and J. Leon Williams. Dr. Hyatt advocates cutting out fissures as soon as the teeth have erupted. He says diet, which is perhaps the cause of such defects, will not help the present generations. His method of practice is looked upon as a prophylactic measure. Dr. Williams believes the occlusal surfaces of all molars and bicuspids are defective but at the same time he holds that defects are not, in themselves, the essential cause of tooth decay. The method of prevention proposed by Dr. Hyatt assumes that all defects decay or a sufficiently large proportion of them to warrant their obliteration by a filling. In the whole paper and the discussion, there is not a word about the permanency of the filling. Teeth with defective fissures will last quite as long as with defective fillings. Someone has said the life of the amalgam filling is but four years. Not all amalgam fillings inserted in the occlusal surfaces of children's teeth are perfect.

Those who advocate the cutting out of all defects in teeth, whether decayed or not, lose sight of the fact that modern dentistry demands that patients visit their dentists frequently enough to foresee oncoming decay. Dental caries does not come on suddenly, so there is no real need of such precautionary measures.

How Physicians are Disciplined

When a physician has been fined in a police court for a violation of the O.T.A., the council obtains a copy of the evidence and conviction from the court and the charge from the Board of License Commissioners. The accused is notified to appear before the discipline committee in Toronto to show cause why his license should not be suspended or revoked for unprofessional conduct in a professional sense. The medical act provides that a suspended license cannot be returned unless all the costs are paid by the accused. This makes it cheaper for him to go to the discipline committee than the discipline committee to go to him. Thus all the hearings are held in Toronto. The discipline committee takes the evidence and makes its recommendations to the council which takes whatever action it deems wise. Between thirty and forty physicians have lost their licenses by this action.

A Tribute to Our Friend the Dentist

Our relation to the dentist is an interesting one. He relieves our ills, repairs our negligence and blunders, usually with sympathy and skill. With friendly insight he tells us the story of our misconduct. With plain, direct wisdom he counsels us as to daily conduct and practice. His warnings are based on facts with little of theory.

The skill of an able dentist is a matter of mystery and admiration. His craftsmanship runs into delicate surgery, or is akin to that of the artisan in jewelry. One remarked to us with modesty: "A dentist is a super-tinker." From that array of tiny instruments he must select just the right one for use in a minute, often obscure, spot. He must apply force with amazing nicety. Behind the idfinitesimal though hard wall is the nerve. With only experience and judgment to guide him, the dentist measures its thickness as with an instrument of precision; he determines its degree of resistance to his gnawing tool. A miscalculation and his work is lost; the plan of restoration destroyed—and, important to us, shrill pain and maybe the loss of a tooth. Yet we seldom hear of such mishaps. Our own experience reports no such happening, and suggests only admiration for the skill, gentleness, and wisdom of the dentist.

We like them, too, on their personal side. Those we know have an amusing knowledge of human nature, seen in miniature crises that display it brazenly. With exhibits of weakness, cowardice even, they are very tolerant. We like their testimony to the nerve and courage of women. They seem to have a tireless interest in their patients as cases and as persons.

Because of the skill of its practitioners, and of their public and individual service in matters of health, dentistry stands high among the benign professions. Happy the man, and happy the family, that has a good dentist!—*Collier's National Weekly.*

McGill's Dilemma

Dr. Thornton's report to Corporation says that "We were unfortunate enough to lose several of our students who should have been registered here in the fourth year, but because of matriculation conditions in this province, they were obliged to go to Toronto in order that after graduation they would have a license to practice in some part of Canada. Unless some change can be brought about in regard to matriculation necessary to obtain a licence in the Province of Quebec, our experience of this year will be repeated in the future. Our students are forced to go to a university where, on completing their studies, they will be in possession of a licence which will enable them to enter upon their life work. I sincerely trust that some change may be effected whereby this great handicap may be removed."

Editorial Notes

Dr. J. S. Hall, a dentist of Detroit, is a candidate for the mayoralty.

Lime deposits in the human being are of bacterial origin just as the oyster shell or the coral rock.

Dr. Mayo thinks both medical and dental students should take the same course for two years and then separate for the final two years.

In some of the smaller cities of Canada, the boards of health are co-operating with the adjoining counties in establishing dental and medical inspection.

The medical profession has raised the base of the fence of exclusion so high that the bottom strands are far enough from the ground to let many cults in under the fence.

Mr. Stratton Blair Gooding, only son of Mr. and Mrs. A. F. Gooding, Kenora, died suddenly while home for Christmas vacation. He was a fifth year dental student at the Royal College of Dental Surgeons, Toronto.

Healthy persons can usually hold the breath from thirty-five to forty-five seconds while those with weak heart muscles can do so only from fifteen to twenty seconds. This should be an easy way of determining if the patient's heart is in condition to take an anaesthetic or not.

Dr. Turner, a noted English surgeon, said in closing the discussion of a paper on sinuses, with regard to bone sockets, he did not like to interfere in any way that would destroy the protective lining of such cavities as he might infect tissue already healthy and might do more harm than good.

There seems to exist some doubt in the minds of the Dental Board of Ontario and the profession generally what offences disqualify a dentist from practice. In this issue appears a pronouncement on these points by the Dental Board of the United Kingdom at the November meeting in 1922.

A man by the name of W. Watters, who claimed to be an English dentist, came to Canada a couple of years ago with a small family. He located in Toronto and began to practise without consulting the authorities. Besides being accused and fined for practising without a license, a would-be patient accuses him of fraud and the Royal Antediluvian Buffaloes accuse him of taking fifty dollars of their funds. It does not appear that he has a license to practise in England.

Would it not be a good idea to give public health talks including dentistry for broadcasting? These might be given about the time children have gotten home from school, or better still, if each school were fitted up so that the news of the day as well as talks on educational subjects could be included in the day's work. Such an outfit for each rural school would bring untold joy to the children and increase the general fund of information which so many people are pleased to call education.

FOR SALE—Buffalo Dental furnaces. Size No. 6. Practically new. Will sacrifice. Gitson Bifocal Company, 77 Queen St., West, Toronto.

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FOR SALE—Complete Dental Equipment in old established office. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

Dominion Dental Journal

Vol. XXXV. TORONTO, APRIL, 1923 No. 4

ORIGINAL COMMUNICATIONS

Treatment of the Teeth of Children

Ruth Drew-Brook, D.D.S., L.D.S., Specialist in the treatment of children's teeth.

Read before the Academy of Medicine, Toronto, March, 1923

It gives me great pleasure to have the opportunity tonight of bringing this subject before you. Permit me first to trace briefly stages of tooth development. Formation of the teeth commences about the tenth week of intra uterine life. At birth the jaws contain in a partially formed condition all of the temporary teeth and the first permanent molars, and the follicles for *all* the permanent teeth except the second and third molars. On eruption of a tooth the crown is fully formed, but the root is not,-with one exception the permanent cuspids. The root continues development for varying lengths of time, since those of the temporary teeth are absorbed before loss—that is physiological loss, putrescent conditions hinder the process,—there is really only a short period of fully shaped root, a fact important in treatment.

Usually the first tooth appears through the gums at about seven months; by the middle of the third year, the deciduous teeth ought to be in proper alignment. There are twenty in all, central and lateral incisors, cuspids, first and second molars, four of each. Each one ought to remain with crown undiminished in size by decay until *pushed* out by its permanent successor.

The process of permanent dentition commences during the sixth year, when the first permanent molars erupt distally to all the deciduous teeth. (Distal in dentistry, gentlemen, means '*away from*' the median line of the face). About the same time the temporary incisors commence to loosen, and one by one all the teeth are lost and replaced by their permanent successors (bicuspids), until the 12th year. There are still the second molars which come about the 12th year and the 3rd molars or wisdom teeth—which may erupt at any time or not at all. There are 32 *teeth* in the *permanent* dentition.

The temporary teeth are largely developed during the periods of pregnancy and lactation, so that prevention of oral disease begins with the expectant mother. The reason why a pregnant woman is often more susceptible to caries may be, that her body is furnishing to the embryo substances which are necessary to assist the resistance of her own teeth to decay, because she is herself supplied with all the necessary substances and her own tissues are sacrificed to a certain extent.

I have not the time nor do I think it necessary to go into the subject of the relationship of diet to general and oral health very fully. We know there *is* a close relationship. Dr. and Mrs. Mellanby are just two who have experimented successfully. Dr. Percy Howe of Forsyth Inst. may not be so well known to the Medical Profession, but he has had remarkable results experimenting on dogs and guinea pigs and is now using monkeys. He claims to be able by changes in diet, surroundings, amount of exercise etc., to produce carious conditions in the teeth, and with 6 months of proper care to reduce the susceptibility to a minimum. This at any age even apart from development. I think I can safely sum up in this way "whatever promotes general good health - air, sunshine, nutritious food, well masticated, hygienic surroundings, plenty of sleep, good habits, tend towards the building and *maintaining* of strong, healthy teeth. This thruout life".

There are certain diseases occurring during developmental process which affect the teeth. Rickets for instance—again I refer to experiments by the Mellanbys. The affect depends upon duration and severity, believed to be one of the causes of slow, pathological dentition;

Hereditary syphilis, by reducing child's resistance may be predisposing cause to early and irregular eruption, malformed and defective teeth and susceptibility to caries.

Exanthematous diseases occurring during period of enamel formation very often produce defects. Pitted, poorly developed enamel on permanent incisors and 1st molars is often traceable to an attack of scarlet fever or measles at the age of one or two years. These teeth are always hypersensitive and require careful attention.

The process of dentition or 'teething' itself is an interesting subject. In the past I believe it was blamed for every disease in childhood. Now the pendulum has swung in the opposite direction. Dr. W. C. Barret in his book "Oral Pathology and Practice" goes into the subject most extensively, and it seems to me expresses the views of the Dental Profession. He points out that there can be reflex disturbances due to dentition, but there are *always* local manifestations, of a marked nature. If after careful study of a case from all angles the diagnosis is pathological eruption and the gums over the offending tooth or *teeth lanced,* relief is almost always instantaneous.

It is regrettable that a very large percentage of even small children are susceptible to dental caries, and many parents think that the first teeth are of no particular value, the sooner they are got rid of the better. There could be no *more* serious mistake. I have mentioned the importance of diet, surroundings, etc., *Mastication* is perhaps one of the *greatest* factors in oral cleanliness. Apart from that, the child ought to be taught how to properly brush his teeth; any sign of plagues or decay ought to be signal for dental attention; a periodic examination by the dentist should be given every three months from the middle of the third year in any case. Twice a year is sufficient later on. In this way we eliminate the *grave results* of tooth decay, the child is saved a great deal of pain and the *parents,* inconvenience and money. There would not be that dread of the dental chair which is so prevalent. As it is, the toothache is the signal, and that, in a deciduous tooth means an infected pulp, very often. It is amazing how bad conditions can be, without the child complaining, and sometimes when he *is* finally brought for treatment, it is necessary to extract, not only one, but several, broken-down, abscessed shells, which with a little timely attention would have remained sound, useful teeth for years. *Remember,* the deciduous molars are not replaced by their successors until the 10th or 12th year, that is normally.

There are many reasons why the temporary teeth should be conserved until physiological time for loss. First let us say, for *mastication,* it takes very little discomfort, to cause the child to instinctively stop chewing on a bothersome tooth and where there are two or three, perhaps not bad enough to persuade his parents that attention is needed, he swallows his food unmasticated, and the habit of bolting is formed.

This is not only detrimental to all his other teeth which require the exercise and the cleaning effect which chewing gives, but to his digestion as well. I am sure you will all agree, that this one irritation might be the basic cause of much more trouble, later in life than 'teething' was ever *ascribed.*

Putrescent conditions in the mouth of a child can be the foci of infection for disorders in other parts of the body, just the same as in the mouth of an adult. The common every day 'gumboil' must be got rid of - not always by extraction, sometimes 'Treatment' of this condition is successful and advocated where possible. But the mouth must be kept free of poisons. Decayed teeth are breeding places for all kinds of bacteria.

Premature extractions of deciduous teeth and first permanent molars are the chief causes of malocclusion, which may be of such varying degrees. There are many other causes but this is a subject itself. If it were not for the skill of the orthodontist there would be no alleviation of the deformed conditions which result. You have all observed facial disfigurements due to malocclusion of the teeth. Narrowing of the dental arches is bound to produce malformities in the size and shape of the nasal cavities. Though by some it is believed to be the reverse. Dr. Pickerell thinks that *adenoids* are the result, not the cause of malocclusion.

I want to emphasize the importance of the sixth year or first permanent molars which are not only the chief means of mastication during the period of loss or replacement of the three teeth but they maintain the relation of the arches. Because they do not replace other teeth, or cause little if any disturbance or eruption, parents sometimes do not even know they are present or allow them to decay unmolested. Their loss is very precious and care imperative.

Above all, I hope to have shown, in my very poor way, that the care of the *deciduous* teeth is of *greatest* importance both to the development of a normal healthy permanent dentition and to *general* health.

School Dentistry

Harold K. Richardson D.D.S., L.D.S. Toronto

Read before the Academy of Medicine, Toronto

The ever increasing interest manifested by the medical profession in Dentistry is apparent again to-night when I have the honour to appear before you and present the subject of School Dentistry. A wonderful co-operative spirit has been the result of years of research work and clinical results obained in localizing foci of infection. A few years ago Dr. Joseph Graham presented a paper before the Academy of Medicine "Diseased Tonsils and Teeth and their direct relation to Chorea; Arthritis, etc.", which was very well received. The speaker was associated with Dr. Graham at that time and since then has been keenly interested in children's dentistry. It is not necessary to discuss dental disease in relation to general systemic conditions with your society. You have long since realized its existence. Our aim is to point out existing conditions and try to offer suggestions for the betterment of oral conditions in our schools of not only Toronto but the province as a whole.

We are proud to know that, as a health centre, Toronto is not surpassed on this continent. Our Medical Officer of Health, Dr. Chas. J. Hastings, is recognized throughout Canada and the United States as an authority on all questions relating to Public Health. The medical profession are familiar with the hospital out-patient dental clinics.

We were glad when you said "We must carry on" when the Department of Public Health decided to discontinue the operation of Hospital Dental Services. As a result of your interest in our profession, Toronto General, St. Michael's and Western Hospitals promptly decided to retain their Dental Surgeons. At H.S.C. unfortunately we have no out-patient clinic. We hope, when the new wing is built, that our profession will not be overlooked, and an out-patient clinic will be established. Even those who cannot afford to pay anything are taken care of in our out-patient dental clinics and nature's masticatory apparatus is restored to function normally.

The Toronto Department of Public Health has a staff of thirty-five school dentists. Of these three are engaged in routine dental examination in all schools, the city being divided into districts. Their work is educational, short, interesting class room talks being given in Preventive Dentistry. We realize more now than ever before that in order to arrest the ever increasing dental disease called Caries some drastic measures as reards diet must immediately be adopted.

In class room talks to children, the speaker endeavors in simple language to make comparison of the dental conditions of our own Canadian people as compared with other races. The examination of skulls of the Maori discloses the fact of an almost immunity from caries, ninety-nine per cent being immune to dental disease. In the Eskimos, we find almost as satisfactory a result, about ninety-eight per cent never have any carious teeth. Their diet is entirely different, yet in both cases, hard, coarse food has produced their immunity. The Eskimo might be classed as a carnivorous eater, living almost entirely on flesh, fish, etc., while the Maori might be termed an herbivorous eater, living on vegetables, hard, coarse roots and herbs.

With our own Canadian people, the condition is just what we find with civilization: the more highly civilized the nation, the more hghly specialized and artificial are the foods which we eat. About 75% of our daily diet requires little or no mastication, due to soft or foods of a liquid nature. Medical science tells us that the salivary glands function twenty times as fast with hard, dry, coarse food as with soft foods or foods which have been softened to suit our delicate palates. Then from the medical as well as a dental standpoint, we should eat more hard course food, as the insalivation is the first step in the digestion of our food. Then for the protection of our teeth hard, coarse foods keep surfaces clean by polishing the enamel during their excursion over the teeth and gums. Also they produce a natural stimulation to the gums which is very essential.

This paragraph was not intended to contain anything new to your profession. I merely wanted to give you an insight as to how we approach the children on the subject of dentistry. A number of dentists of the health department visited a provincial school for boys last December. They ranged from twelve to seventeen years in age and were two hundred in number. We found an alarming condition. Over sixty per cent. had pyorrhea, a great number of these cases would be classed as trench mouth. On inquiry we learned not one boy in the institution was using a tooth brush. This was an extremely rare condition of the gums for boys of that age, caused by lack of gingival stimulation which could have been produced by a tooth brush, also by a filthy condition of the mouth. Their only salvation was in hard coarse food to stimulate and produce a healthy gum when they had discarded the tooth brush.

Our friends, the Maori and Eskimos, never use a tooth brush but their diet has taken care of the toilet of their teeth. The influence of the anatomy of the tooth plays a very important part in the susceptibility and immunity from caries. The normal contact point, wide embrasures etc, are factors in prevention.

So often we have physicians refer children to out-clinics with defective enamel. A defect is a lack of coalescence in the islands of calcification. The enamel prisms are laid down in strata, being united with an intercellular cement substance. Just before the eruption of a child's permanent teeth, the patient may have some general systemic disease viz:-measles chicken pox or scarlet fever. The resistance being lowered, there is insufficient cement substance to unite these prisms together and the result is defective enamel. Very little can be done in these cases. The yellowish appearance is very often the appearance of the dentine where the enamel is so very thin. The devitalization of pulps in children's teeth is a very important operation. Often a badly exposed pulp which cannot successfully be capped means the loss of the tooth. Roots must be completely calcified before extirpation of pulps can be done. Where calcification is incomplete and a devitalizing agent is sealed in the tooth, it means destruction of tissue at end of roots and it has meant osteomyelitis in some cases which have come under observation. It is often sad to have to announce an extraction will be necessary, realizing the value of one tooth to the growing child.

We must get these children young and do our best to make them realize that nature has endowed them with a masticatory apparatus that requires an extraordinary amount of care, due chiefly to our soft diet.

In our schools we have established pre-school dental clinics where children of pre-school age are taken care of. Too much credit cannot be given to our nurses and teachers for their hearty co-operation in making this important branch of our service a success.

The fears of the Kindergarten children are permanently allayed by our teachers. Our kindergarten supervisor instills into her flock the spirit of bravery to such an extent that a visit to the dentist is a delightful announcement. On returning after the operation, a medal is pinned on the breast and the child is the admiration of all present for the remainder of the afternoon.

What a wonderful start in life for a child! Perhaps some of us present here to-night would have been glad if such a procedure had been our allotment. I think I would be in order to mention the lady's name, Miss Harrison, Manning Ave. School, Mr. Chas. Fraser, Principal has been a faithful friend to the Department of Public Health. There is every reason to advocate Municipal and State dentistry under such conditions. In all schools, we are well received and are made to feel that the teacher has the children's health foremost in mind. When I was asked to speak on School Dentistry I thought what a broad subject to be dealt with. At the present time the speaker is doing dentistry at the Northern Academy, Monteith, Northern Ontario. This is only one instance to show how carefully the Ontario Department of Education is looking after the oral conditions in Government schools. A great number of pupils here are living in places where the services of a dentist are unheard of.

In the poorer districts of Toronto, the pupils take advantage of Dept. of Public Health's school clinics to a greater extent than in the more well-to-do districts. In our school centre, which includes four schools there are over five thousand children, including children of pre-school age, under our supervision. Fortunately some can afford to have work done by the family dentist. A consent card is signed by parent before the work is commenced. The nurse makes the appointment, one day being allotted to each school in the district. For instance at Manning Ave. Dental centre, Monday is Manning School day; Tuesday, Grace; Wednesday, Givens; Thursday, Niagara; and Friday, Pre-school day. We average about twelve daily with a great number of terminations or completed cases. The ever increasingly popular service in school clinics is gratifying to the Department.

Anno Domini 1859-1923—Then and Now

Conservative Dentistry

By H. Hayes-Norman, D.D.S., Adelaide, South Australia

Conservative dentistry is of quite modern times, for until the latter part of the 18th Century extraction or destructive dentistry was practically the only cure for "mal aux dents." The entire development of the conservative branch of modern dentistry dates mainly from the latter half of the 19th Century, although the establishment of the first dental college in the world—that of Baltimore—took place at the end of the first half of the year 1840.

Conservative dentistry then mostly consisted of filling cavities in the crowns of teeth with sheet lead, tin foil or sometimes in cases where the cavity could be made cylindrical with lead shot which were driven into a cavity thus prepared and any excess lead was cut away to adjust the occlusal contact (bite) of the patient.

This method of filling decayed teeth was extensively practised in France and even to the present time in France the operation although no longer the act of a plumber is styled "plumbing," i.e., filling with lead.

(This reminds the writer that dentistry has had humble genesis elsewhere, for in Japan the dentist used to be referred to as a tooth carpenter). For the other and then rare, cavities of approximal decay a mercurial preparation of copper was used, invented by Sullivan and known by that name. To prepare for use in the form of pellets as bought from the depot man it was heated in an iron spoon until globules of mercury appeared on the surface.

They were then ground down with a pestle and mortar till they became a smooth plastic mass and the excess mercury was squeezed out through chamois leather. The copper amalgam had very much less tendency to assume the spheroidal form in obedience to the pull of the mercury but that advantage was greatly discounted by its solubility if in contact with gum margins. It also had a tendency to become saucer shaped in the coronal surfaces of teeth. Some years later the celebrated dentist and scientist, W. D. Miller, of whom more will perhaps be written, introduced some copper into ordinary alloy for stopping teeth with a view of securing asepticity. In 1864 the greatest boon ever conferred upon the dental profession was the invention of S. C. Barnum an

American dentist of the use of a thin sheet of rubber for keeping the cavity of a decayed tooth dry while undergoing operation and known as the coffer dam. It was indeed a blessed help but as ladies are proverbially difficult to please it is not unusual to hear the remark "I hope you are not going to put on the dam(n) rubber!" The mercurial copper amalgam inserted in a cavity, the surface of which had not been chemically dried resulted in the entire tooth being turned a bluish green colour like that of an unripe damson. This was more especially so when my father for aseptic considerations blew into the cavity an impalpable powder of nitrate of silver by means of a small bent glass tube. This was the practice when the pulp was nearly exposed as indicated by a premonitory twinge of pain in the decaying tooth when tested with alcohol and a puff of air from a syringe. The term coffer dam for a thin piece of rubber with a small hole punched in it to exclude the warm breath and moisture of a patient's mouth when drawn over a tooth is very apt being borrowed from a practice in hydraulic engineering. When a bridge engineer desires to sink a shaft for the foundation of the piers of a bridge he erects a coffer dam which is an outer and inner tube puddled with clay, and his foundations are not injured by premature access of water.

Before the dental coffer dam was invented, cotton rolls or rolls of bibulous paper had to be used to absorb the moisture and it was a race between the patient's salivary glands and the operator with the odds heavily in favour of the former. I am inclined to think the former won all too frequently.

Dr. Robert Arthur, M. D. D. D. S. invented cohesive gold which can be welded into cavities of decaying teeth which are mere wrecks and much of the forms lost. They can be restored to shape. These restorations depend upon all moisture being excluded from cavities. This would be impossible without the dam and therefore I would place its use as first in the order of merit and obligations that the profession is the debtor to. Dr. Robert Arthur as stated above was the inventor of adhesive gold foil for stopping teeth which remains today the best stopping material where it can be used and circumstances warrant its employment. He had been a professor of the Principles of Dental Surgery in both the Philadelphia and Pennsylvania Dental Colleges. He published the first edition of his work "Prevention of Decay of the Teeth'' in 1871 and a second edition in 1879. In the preface to the second edition the gifted author wrote.

''A very extended application of the system of treating the teeth explained in this work has afforded the author ample opportunities of observing the results of practice. These have given him no reason to change the views stated in the first edition; views which were the outgrowth indeed of a careful study of this special subject extending over a number of years before they were offered in any form to the dental profession.''

Many dentists in the land of ''Stars and Stripes'' rushed in to use the method thinking it an easy one requiring no teaching and very little experience, in fact a road in which to get rich quickly. The result was that almost everyone failed to succeed with it and lamentably they ruined many good teeth.

It became ''anathema'' to many practitioners. But it should not be so for the writer has practised it with very great success ever since 1872, that is during the little period of half a century. The Master Key is first the study of the present occlusion of the patient and secondly the decision where and when it may and may not be done.

The writer for the arrest of contiguous decay has Arthurized 14 teeth of the upper jaw from and inclusive of mesial approximal surface of the second molar on each side and from the distal surface of the first bicuspid on each side to the mesial of the second molars in the lower set.

In one case this work was done some fourteen years ago and the teeth today are free from all symptoms of caries neither do they show any signs of mutilation.

A patient who came to me quite a young woman somewhere about 30 years ago has recently passed away but carried her Arthurized teeth to her last resting place.

Her husband's certificate of this truth can be obtained from London. Still another patient, volunteered for service in the Great War, has given me the enclosed statutory declaration (called affidavit in U.S.A.) of its efficiency and as that gives the history repetition is needless. It is a pity that the system has become a lost art.

The principle involved in the author's practice and greatly and earnestly sought for is prevention of caries by altering the condition that permitted or favoured the decay, or whatever the cause of the disease may be termed i.e. deficiency of vitamines, or lack of oral hygiene, excessive oral lactic acid by the use of sticky food containing excess of carbohydrates, etc.

Arthurizing has been condemned and the writer has written of it as a "lost art" but Cicero stated a great truth when he wrote "dammant quad non intelligunt". It is also easily proved that for 50 years the writer has practised this system with great success using discrimination and judgment. Prevention of dental caries and the best interests of my patients being my slogan I have practised yet another form of prevention which is probably as anathema to many dentists as Arthurizing became by the ill trained followers of Professor Arthur who brought it into disrepute.

The other form of prevention depends upon the children being brought to the—preventer—at an early age, say from three years of age and kept under frequent observation till 12 years old. Then if that is done the writer would hold it to be a disgrace if his patients have not carbohydrate free mouths. Models of what this system can produce have been forwarded to a member of the American Academy of Applied Dental Science—Dr. Stier, D. D. S.

By this later method the extraction of the sixth year molars at the psychological moment the bogy of malocclusion is avoided and as the child grows up to adult age the preventive measures are greatly increased. It would take too long to enter into a discussion of the "modus operandi" and the early symptons that are a warning to the dentist that like causes inevitably produce like effects.

The writer is greatly refreshed by an opinion or rather a definite statement of the efficacy of the alternative mode of prevention of tooth rot practiced by an eminent London dentist holding high degrees and supported by his 20 years of experience.

In the British Journal of Dental Science of August 1921 appears the following:

At a meeting of the section of Odontology, Royal Society of medicine a paper was read by Dr. J. G. Turner F.R.C.S, L.D.S. Eng. on "Dental Sepsis," in which he stated the factors of dental sepsis are well known—stagnation of germs and food debris among the teeth in every possible stagnation area and sequent to this dental caries, dead teeth and chronic abscesses, tartar, pyorrhea, artefact stagnation areas of crowns, bridges, bad fillings and plates.

Preventive treatment includes the abolition of all artefact stagnation areas, the avoidance of sticky food (this however is impossible), the maintenance as far as may be of a large and regular arch of teeth AND TIMELY BUT NOT TOO EARLY EXTRACTION to provide for the actual separation of the remaining teeth from each other till it is easy to pass worsted thread between those teeth. Dentists have during the conservative period of dentistry always been looking for methods of prevention and have been divided by two opposite lines of treatment, one school being separationists and the other contourists and extensionists. The contourists finding that the teeth built out by stoppings so that food could not be forced downward or upward between them yet accumulated food between them in the interdental spaces causing caries again frequently set in on the *lingual* ends of their fillings.

To remedy this the system of extension of a cavity lingually and labially was and is probably still practised.

It failed frequently because there remains a weak link in the chain viz. at the neck of the tooth in the interdental space where the acid forming food is not removed by friction.

This essay would scarcely be a complete narrative of modern conservative dentistry without reference to the conservation of the nerve and blood vessels of the teeth. Thus wrote Dr. James Truman in the American System of Dentistry edited by the medico-dentist Wilbur F. Litch M.D. D.D.S. "The treatment of exposed pulps and their complicated pathological changes has assumed increased importance indeed it may be said to base its progress and right to be deemed worthy to be called a profession upon the intelligent conception of that organ."

Truman after enumerating a considerable list of materials used in the attempt to preserve the vitality of the pulp, added "that capping can be made an invariable success must ever remain an impossibility. The delicate nature of the organism endowed as it is with sensory nerves inviting the inflammatory condition upon the slightest irritation makes any treatment difficult and uncertain. Systemic peculiarities —the anaemic, scrofulous, the syphilitic all operate against a satisfactory prognosis; and so common are these antagonistic forces that it is somewhat remarkable that there has been any degree of success."

The writer thinks that pulp treatment has been conducted upon a wrong conception of the nature of the organ and the influences it is subjected to. From an experience of sixty-four years—fifty-two of which have been devoted to pulp conservation he has no hesitation in saying that the vitality is very great—take for instance the edematous condition of a pulp fungoid tumour that persists for years.

Pulps must be treated bacteriologically. It has, as stated by that great scientist and dentist of Chicago, C. N. Johnson, great powers of recuperation.

I wish to make a solemn declaration that every aching pulp can be preserved even if the pulp chamber is empty though there is life in the nerve canal. I wish further to affirm that I have had to remove in fifty-two years two stoppings to retreat pulps and that I have never had a patient return with pain let alone an abscess. I see the day is not far distant when any dentist intentionally devitalizes a tooth will be considered to have committed "infamous conduct in a professional respect."

The suggestion of the use of worsted thread is worthy of attention by every dentist who has sincere desire to mitigate the curse of the white races. The worsted thread is circumferentially elastic not hard, shiny and, unlike the waxed floss silk we have been recommending to our patients to use for many years. Its roughness will facilitate the removal of sticky food from interdental spaces.

The spaces produced by dental art will positively prevent 85% of the total number of decays that dentists have to combat. The writer of the essay quoted from does not refer to labial and buccal decay on the gingival margins.

Unlike decays on the masticating surfaces of teeth or those on the lingual surface of the upper centrals and laterals we cannot there alter the developmental conditions that fostered the decays.

Nevertheless the present writer desires to affirm these buccal and labial decays are greatly lessened in number by the increased friction on the gums.

Died from Natural Causes

McGill University, Montreal.

The Editor, Dominion Dental Journal,
Toronto, Ont.

Dear Sir:—

In the March issue or your publication there is an article under the caption, "Died from Natural Causes". I have been deeply interested in reading this article, and the reason for this interest will become apparent when I say that our dental clinic is a part of a very large general hospital, and that, in that clinic, literally thousands of teeth are extracted every year.

In the last part of the article to which reference has been made, I was particularly struck with the evidence given by Dr. Laker, a Toronto dentist, who was evidently called upon to give evidence in this case. In your report you state, "Dr. Laker, dentist, was then called and stated that in his practice, not more than four or five teeth, and often less than that number, were ever extracted at one time, as he considered it bad practice. Replying to a question from the Crown Attorney, witness considered procedure in present case absolutly wrong in interest of the patient. Witness also stated that he always made a thorough examination of physical condition of patient before administering anaesthetic or extraction of teeth."

Let me ask this question: Why is it bad practice to extract more than four or five teeth at one time under a general anaesthetic? If a patient, man or woman, be in perfectly good health, and requires the extraction of eight or ten teeth, and if, in such case, the anaesthetic be carefully given, and the teeth carefully removed and every precaution be taken to avoid danger, or accident, why, again I ask, is it bad practice to extract eight or ten teeth at one time, and thus avoid a second adminstration of a general anaesthetic?

In the paragraph to which reference has been made, Dr. Laker is made to say that "he always made a thorough examination of physical condition of patient before administering anaesthetic, or extraction of teeth." What does Dr. Laker mean by a thorough examination of physical condition of patient? Does he mean that he always tests for blood pressure; that he always makes a blood count; that he always examines with a stethescope the heart and lungs; that he always makes a careful urinalysis, and that he always advises his patient concerning conditions to be observed before taking the anaesthetic, and the care which should be observed after recovery from the effects of such anaesthetic?

It would be interesting to know what forms of general anaesthesia Dr. Laker advocates. Does he use nitrous oxide at one time, chloroform at another, ether at another, somnoform at another, and ethyl chloride at still another? What physical condition would suggest ether at one time, chloroform at another, nitrous oxide at another, and so on, and so on?

Is the general anaesthetic in Dr. Laker's cases always administered through the mouth, or does he sometimes use nasal inhalation? Does he ever use the intra-tracheal method of general anaesthesia? What precautions does he take to prevent foreign bodies, such as teeth, or blood, or spicula of bone from entering the pharynx or the larynx, trachea, or the lungs, thus causing lung abscess? Is Dr. Laker prepared to go into the witness box and swear that a man who removes more than four or five teeth at one time under a general anaesthetic is guilty of malpractice, and should be prosecuted, for, as I read his evidence, that is the meaning of the following words taken from the article: "Witness considered procedure in present case absolutely wrong in interest of the patient."

Another interesting question arises in regard to this very important case. If it be true, as Dr. Laker states, that "he always makes a thorough examination of physical condition of patient before administering anaesthetic or extraction of teeth", where did Dr. Laker take the training which would fit a man to make this physical examination and arrive at a correct diagnosis of the conditions? There are a great many of us who would like to take some postgraduate work along these lines, if we only knew of an institution where such a course could advantageously be taken. Is there not a better plan, Mr. Editor, for dealing with this question? Would it not be wiser in such cases to have the patient's physician make the examination, and assume the responsibility, at the same time determining the nature of the anaesthetic and the extent of the operation which should be performed under one administration? Such patients are usually referred to the dentists by the family physician. Such family physician sends the patient to the dentist because he believes that the dentist is the person most capable of extracting the teeth. In like manner should the dentist not refer such patients to the family physician, or a specialist in anaesthesia and let such specialist assume responsibility?

Such broad statements as those contained in Dr. Laker's evidence are ill founded, in bad taste, and very apt to produce a very considerable amount of misunderstanding, if not positive injury.

Very Truly Yours
A. W. Thornton.

Discussion by Dr. W. J. Laker.

Having read over this article several times and carefully looked into the evidence of this case, I feel justified in making a few statements. Especially does this seem proper when one is criticised by the writer of last month's article.

Dr. Madill states that he "regrets that one in his own profession who did not have an oportunity to study the case should have made such positive statements on the matter of extracting many teeth at one sitting".

Now it was brought out in the evidence as stated in the first paragraph of the article under discussion that the said Dr. Madill knew that the patient had Gangrene of the toe, Arterio-sclerosis, and high blood pressure, three very dangerous ailments, any one of which I think would be and should be so considered, but the three together and known would, I feel, compel an operator to be careful. It must be borne in mind the fact that this patient, now dead, had other ailments but to be plain and emphatic, these other ailments were unknown to both the operator and the physician at the time of operation. Therefore it is only fair to suppose this extraction was to be done in an endeavour to save the patient and restore him to health. The extra ailments the patient had must be eliminated in so far as they were not known until after death. Therefore we are working for a patient who is known to have Gangrene of the toe, Arterio-sclerosis, and high blood pressure, this being what we are asked to secure from a physician, the patient's history and state of health.

Dr. Madill states that these extractions were not difficult, then I claim that as a Gangrene condition is not a favorable case even when that trouble comes alone, inasmuch as some Anaesthetists would not give a general anaesthetic to a patient of this type unless it was absolutely unavoidable. As these extractions were easy why could not a minimum of local Anaesthesia have been used? Operations divided into more than one sitting and the area of infection given definite attention?

Again Arterio-sclerosis and high blood pressure are both dangerous, the latter often times is greatly reduced by careful treatment and not, as we might say by too much extraction at one sitting. I would like to say that my work is guided by the teaching as practised by such men as Doctors Hartzell, Boyd Gardner, Molt, Thoma, Shearer, and others, and my correspondence with some of them would, I think, absolutely warrant me as well as my own observations in my work will warrant me, in saying as I did that I felt and I do feel yet that another form of procedure would have been advisable and that when the Crown Attorney asked me if I thought there had been too many teeth removed at once I could not hesitate but to say I thought there had been. I do not hesitate to say this emphatically. No, I had not seen the case before the operation. I think such a statement or remark decidedly out of place and uncalled for when we had before us the patient's history given by the physician. What more trouble would one want in a patient? What would be gained for my evidence if I had seen the patient? I would in all likelihood have been more emphatic than my sttatements were at the inquest, if I had. I think nearly all of us, if carved up or dissected would not pan out 100%, therefore may it be supposed for carefulness that most patients are fully as ill as they are known to be. I have endeavoured to co-operate with physicians in my practice, which is now one mostly of patients referred by physicians, and I feel quite justified in the statement I made. Furthermore, a patient with Gangrene of the toe, Arterio-sclerosis, and high blood pressure, should I think, positively be looked upon as a very dangerous case, one with a history bad enough to warrant extreme care, without any further examination before practically deciding that the operations must be minimum at each sitting. If it was Dr. Madill's custom at times to remove only a few teeth at a sitting in some cases surely this would make it more to be supposed that this one should have been of the kind for short and thorough operations, and as the extractions were as stated, 'easy,' a general anaesthetic might have been avoided.

I would like to say that even where the minimum amount of extraction is done at a sitting, I mean also, that the infection is taken care of and positively not left alone to do as it pleases.

In conclusion may I state that the largest definite infection removed under my notice was removed from under a root which could have been tilted out with one of our finest instruments. This patient had been ill for some three years, is now well. This shows that we need not have a difficult extraction in every case of severe infection.

Dr. Madill states that I said that in my practice not more than four or five teeth and often less than that number were ever extracted at one time as I considered it bad practice. Allow me to say that this is absolutely wrong in its meaning. In cases of illness we sometimes even extract only one at a sitting, but in healthy patients the procedure is entirely different from what Dr. Madill would have one believe from his article on page 92.

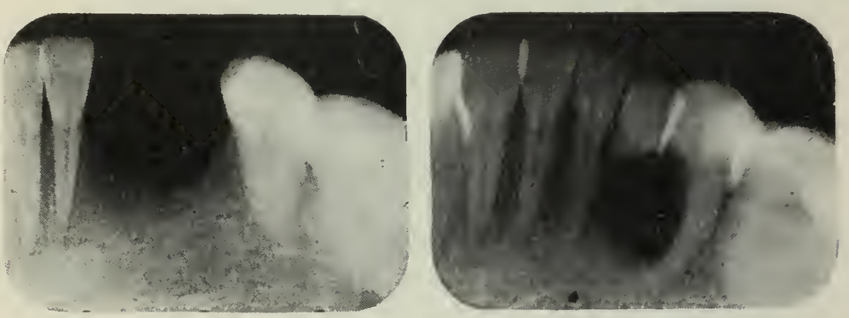
Dental Students Win in Debate

The Royal College of Dental Surgeons' debaters won the championship of the Inter-College Debating Union by defeating McMaster University in Toronto last month. The subject was: ''Resolved that the deepening and development of the St. Lawrence Should be Undertaken as an International Project,'' the winners, E. Guest and J. A. Boyd, taking the affirmative. S. J. Helps and G. P. Gilmore, B.A., represented McMaster. E. Guest's five-minute reply to his opponents was hailed as one of the best debating efforts of the season.

The judges were: Arthur Hawkes, R. S. Stanbury, M.D. C.M., and H. M. Cody, B.A. The last named, a member of Osgoode Hall debating team, presented the Kerr Shield to the Dentals, who having won the series for the first time last year, were defeated in the finals by Osgoode Hall.

Tooth Root Absorption

A girl thirteen years of age recently consulted Dr. S. M. Kennedy because her lower right permanent lateral was loose. There was a slight redness about the gingivæ and a slight puffiness opposite the root. The patient suffered no pain or inconvenience, was in apparent good health and is still so. The unusual looseness aroused a suspicion which called for an X-ray which showed (No. 1) a complex loss of the lateral root and a large portion of the cuspid. An anaesthetic was administered and the crown of the lateral removed and the remainder of the cuspid, as well as the central which became loose when the other teeth and the contents of the cavity were removed.



The cavity contained a mass of caseous material interspersed with some fibrous tissue. There was no living membrane. The cavity was dressed and treated in the ordinary way and healed up without eventuality. After five months there has been no recurrence or other evidence of anything unusual having occurred. Picture No. 2 shows the condition as it now is. Some of the contents of the cavity were sent to a pathological laboratory for a report but, owing to the disorganized condition of the tissue, nothing could be made out. The remarkable thing about the process was the complete and progressive absorption of the roots of two vital teeth in so young a patient. Absorptions occasionally occur later in life without any apparent pathology but this had an undoubted pathological origin.

Dental Caries in Relation to the Structure of the Teeth

A preliminary report[*] of the special committee which is investigating the causes of dental disease has just been issued, and deals with the structure of the teeth in relation to dental caries. The name of Mr. Howard Mummery as author is a guarantee of the accuracy of the histological work on which the report is based. The illustrations are beyond all praise and show that in the difficult field of dental histology this country as nothing to learn from any other. The committee has wisely decided to issue reports on various aspects of the investigation as they are completed. This interim report does not, however, represent the committee's final word even on the subjects discussed. The significance of this subject of the structure of teeth in relation to dental caries is twofold. There is, first, the question as to how far variations in the density of calcification of the teeth now predispose to dental caries; secondly, the question arises whether the enamel is to be regarded as an inert substance which, once formed, is incapable of further change, or whether it contains organic matter and may be within the pale of nutrition and possibly capable of reacting to injury like other tissues. There is a general agreement that the stagnation of carbohydrate substances, by causing the formation of acid, is the actual cause of caries; there is also agreement that gross defects of the enamel such as occur in hypoplastic teeth, by favouring the retenion of starchy food, predispose to caries. On the other hand, there is considerable divergence of opinion as to the importance of structure in accounting for the widespread incidence of caries. Sim Wallace allows but little importance to this factor and points to the undeniable fact that hypoplastic teeth, though favouring out the initial onset of caries, yet because of their poorly calcified structure, often lead to a natural arrest of the process. Mrs. May Mellanby, as the results of experiments on animals, concludes that defective calcification is due to deficiencies of diet and regards it as a factor of considerable importance. In a recent paper[†] she has shown that many deciduous teeth which appear perfect to the naked eye, on microscopical examination frequently reveal defective formation of enamel and dentine. Over 80 per cent. of deciduous teeth examined showed imperfect calcification, and of these the great majority were carious. It would be unwise to stress too much the significance of this research until it has received further confirmation, but it would suggest that we must widen our definition of hypoplasia to include defects of calcification only visible under the microscope. This conception would undoubtedly extend the role of defective structure as a factor in dental caries, for whereas microscopic hypoplasia is only found in the minority of children, the microscopic hypoplasia described by Mrs Mellanby is present in a large proportion of deciduous teeth. A reflection suggests itself that on this assumption, liability to dental caries may be as much a matter of the general health during the period when the teeth are being calcified as of the dietetic conditions which exist after the eruption of the teeth. The deciduous teeth commence to calcify before birth; thus the prevention of dental disease, so far as it depends on the defective structure of the teeth, may be said to come within the scope of antenatal hygiene.

[†] *British Dental Journal, January 1st., 1923.*

Does the Enamel Contain Organic Tissue?

The second problem as to whether enamel is an entirely inorganic substance and therefore a passive factor in dental caries, or whether it contains organic tissue and may thus be within the pale of nutrition is a much more speculative matter. Mr. Mummery subjects the available evidence to close scrutiny and adds some further evidence of a suggestive nature. C. Tomes held that enamel is entirely inorganic. If this be so, then the view of H. P. Pickerill that enamel undergoes hardening after eruption cannot be correct. Equally, the suggestion of F. W. Broderick, that in periods of calcium deficiency lime salts may be withdrawn from the enamel must fall to the ground, for both hypotheses postulate the presence of organic matter in enamel. On the chemical side the analyses of C. Lovatt Evans show a small though definite amount of organic material in enamel. On the histological side Mr. Mummery brings strong evidence to show that enamel contains spaces which are penetrable by stains. It would seem reasonable to assume that these spaces are filled with protoplasm during life, though the actual proof of this may be a difficult matter. But although chemical and histological evidence strongly suggests, and, indeed, even proves, the presence of organic matter in enamel, this is not tantamount to saying that such changes as those suggested by Pickerill and Broderick actually take place. All it does is to make them at least a tenable proposition by showing that the necessary conditions exist in enamel. The proof is still to come. To the hygienist anxious for some practical method of preventing dental disease, these speculations may seem academic, and, indeed, even harmful in that they may tend to diminish the importance of carbohydrate stagnation as the all-sufficient explanation of dental caries, and with it the simple and undoubtedly valuable prophylactic measures which are based on that theory. With this view we cannot agree. With increasing research the problem of the etiology of dental caries becomes correspondingly complicated. It would be doing an ill service to scientific dentistry to make the problem a simple one by arbitrarily excluding factors which are admittedly speculative at present. We are glad that the committee, as shown by the report, intends to take a wide view of the subject and to examine carefully every factor which may possibly throw light on the causation of dental caries.

Arrested Caries.

A section of this report is devoted to the subject of "arrested caries," a condition of great practical importance. It has long been known that in certain circumstances the process of caries may be arrested and the tooth become even harder than normal. It occurs commonly in the deciduous teeth, but may also be present in the permanent teeth, especially in hypoplastic molars. The caries, instead of spreading down the dentinal tubules towards the pulp, spreads laterally and causes a large area of the enamel to flake off. This leaves a broad, flat surface which does not favor food retention; at the same time the pulp reacts to an injury not intense enough to kill it, and causes a hypercalcification of the dentine. Such a tooth, though discoloured and partly eroded, may last for many years in a healthy condition. Though we know the general factors which bring about this protective reaction, we do not yet know them in such detail as to be able to induce the condition with certainty in any given case.

Dental Therapeutics.

Mr. Mummery discusses the use of silver nitrate in arresting caries. This drug has long had a popular repute and is undoubtedly useful. Is it possible to use it to better advantage? Is the reduced silver nitrate method introduced by P. Howe and widely used in America, better than the solid silver nitrate as generally used in this country? Further investigation of the question is still needed, for a combination of clinical and laboratory methods might solve the difficulty.* A knowledge of all the factors necessary to bring about this natural arrest would increase the scope of dental therapeutics enormously. School dentistry holds an assured place to-day as one of the ways of safeguarding the public health. At present arrested caries occurs sporadically, and in the minority of cases. Could we possess in full detail the knowledge necessary to control this beneficient reaction and so induce its occurrence on a large scale, school dentistry would gain immeasurably in efficiency. It is far too early yet to predict the outcome of the Committee's deliberations, or even to forecast the scope of their investigation, but we may confidently expect that this will leave no aspect of the problem unexplored. Especially do we hope that the clinical aspects of dental caries will receive careful investigation, for we believe the study of these to be essential to a full solution of the problem.—*The Lancet.*

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* Medical Research Council. Reports of the Committee for the Investigation of the Causes of Dental Disease. 1. The Structure of Teeth in Relation to Dental Disease. By J. Howard Mummery, H. M. Stationery Office. pp. 24. With 18 illustrations. 2s.

British General Medical Council

Report of the Dental Education and Examination Committee. Applications for Exceptional Registration

(1) *Colonial and Foreign Applications.*—The Committee considered the following applications for registration in the *Dentists Register*:—

(*a*) George Frederick Atkinson, L.D.S., R.C.D.S. Ont., 1922; D.D.S., U. Toronto, 1922.

Gerald Carlow Bonnycastle, L.D.S., R.C.D.S., Ont. 1900; D.D.S., U. Toronto, 1900.

Joseph Patrick Coghlan, L.D.S., L.C.D.S., Ont., 1898; D.D.S., U. Toronto, 1898.

None of the applicants is domiciled in the United Kingdom. There are many precedents for granting similar applications.

Recommendation: "That the foregoing applicants be *acceded to.*

(*b*) William Henry Ibberson, D.D.S., L.D.S. Coll. Dent. Surg., Sask., 1922, after examination by the University of Saskatchewan.

Alexander James Saich, R.D.S., Coll. Dent. Surg., Sask., 1919, after examination by the University of Saskatchewan.

Clifton Warrington Smith, L.D.S. Coll. Dent. Sur., Sask., 1918, after examination by the University of Saskatchewan.

From the particulars furnished it appears that Mr. Ibberson obtained his Licence after examination in Anatomy, Bacteriology and Pathology, Materia Medica and Therapeutics, Medecine and Surgery with anaesthetics, operative Dentistry Orthodontia, Physiology and Histology, Prosthetic History and Chemistry, Physics and Metallurgy; no particulars as to curriculum have been supplied, nor does he give particulars of his curriculum for, or the origin of his D.D.S., Mr. Saich served a five years' apprenticeship with the consent of the Saskatchewan Dental College, and attended the Manitoba Medical College as a special student during the years 1917-18, and passed a similar examination to that taken by Mr. Ibberson; Mr. Smith also served an apprenticeship commencing in 1911 and also passed a similar examination. In neither of the last two cases has sufficient information regarding the curriculum been supplied.

Recommendation: "That these applications be *not acceded to.*"

(c) Walter James Irvine, D.D.S., Chicago, 1897, L.D.S., New Brunswick Examining Board, 1902, registed by the Dominion Dental Council, 1919, who desires to obtain registration in the United Kingdom in order that he may obtain registration in Quebec.

Particulars of the course taken to obtain the D.D.S. Chicago are not furnished, but to obtain the New Brunswick Licence he passed an examination in Anatomy and Surgery, Materia Medica, Operative Dentistry (Theory and Practice), Prosthetic Dentistry (Theory and Practice), Pathology, Histology, Bacteriology, Chemistry, Metallurgy, and Physiology.

Recommendation: "That this application be *not acceded to.*"

(*d*) Francis Roger Frazer, a registered dentist after passing the Examination of the New South Wales Dental Board, 1909, after a four years' course of study.

Mr. Fraser states that he attended courses at the Sydney University (1904-1906) in Chemistry and Physics; Human Anatomy for twelve months, with dissections at the University, and a further theoretical training for two years with a B.D.S. U.Sydney; a two years' course in Physiology at the University, and a further six months' advanced Physiology, which medical students have not to undergo, with further instruction from a B.D.S. U.Sydney. During his four years' course he was also attending the United Dental Hospital of Sydney.

He claims that the Dental Board qualifications is as severe as that of the University, and that, in addition, he attended at the University for further instruction.

Recommendation: "That this application be postponed for further inquiry."

(e) Christopher Augustus Lopez, holder of a Certificate from the Board of Examiners of Jamaica, 1906.

Mr. Lopez was a private pupil in the Island from January, 1899 to 1902, of two American dental practitioners, partners, graduates respectively of the Chicago College of Dental Surgery and that of Baltimore; he began to practise dentistry in Jamaica on his own account in January, 1903, and in September, 1906, passed an Examination as required by the Jamaica Dental Practitioners Law, 1905, held by a Board consisting of three qualified dental practitioners; obtained a certificate of competency, and became registered. He has practised in the Island ever since, and was approved for attending professionally on ranks and ratings of the Royal Navy.

Recommendation: "That this application be *not acceded to.*"

(f) Grace Marie Long, D.D.S. N.W. Univ. Chicago, 1915.

Harry O. Silcock, D.D.S. U.Penn., 1922.

Reuben Lenzer, D.D.S. U.Penn., 1916; New Jersey State Licence, 1917.

Edward Henry Griffiths, D.D.S. Philadelphia Dental College.

William Bernard Enright, D.D.S. Chicago College.

Robert William Albury, D.D.S. U.Penn., 1889.

Frederick William Percival, D.D.S. U.Harvard, 1894.

Miss Long obtained her licence after a course of study extending over a period of thirty-three months (October, 1912, to June, 1915). Her practice in a "recognized General Hospital" was taken in the Clinic of the North-Western University Dental School under medical instructors.

Mr. Silcock is already registered in respect in his L.D.S. He desires to register his D.D.S. as an additional qualification, and states that, in virtue of his British qualification, he was admitted to examination for the Degree after the fourth years' course of study at the University, of which particulars are given. He is, however, domiciled in the United Kingdom.

Mr. Lenzer, after matriculating at the University of Melbourne, served a four years' apprenticeship in Melbourne, was admitted to the School of Dentistry of the University of Pennsylvania on September 26, 1913, and, having passed all the examinations, received the degree of D.D.S. in June, 1916. Particulars of study are given. He held a lectureship at the University of Illinois, 1916-17, obtained the New Jersey State Licence in 1917, &c.

Mr. Griffiths does not appear to have taken out any practice at a recognized General Hospital, or to have studied Physiology, or to have taken a course in Medicine or Surgery.

Mr. Enright appears to have taken out a three years' course of study only, and there is no record of any General Hospital.

Mr. Albury states that previous to taking his course he served a seven months' apprenticeship under a qualified dental surgeon; his course of study extended over three years, but it did not include any attendance at a General Hospital.

Mr. Percival's course extended over the period September, 1891, to June, 1894, but did not include any attendance at a General Hospital.

Recommendation: "That these applications be *not acceded to.*"

(g) Kingsley Eric Lawton, Chirurgien-Dentist, Faculté de Médicin de Paris, 1912.

Mr. Lawton served apprenticeship to a dentist from 1906-1910, and studied at the School of the Dental Dispensaries of Paris from November 4, 1909, to September 29, 1912, when he passed his Examination and obtained his Certificate. Full particulars of the course of study are given.

Recommendation: "That this application be *not acceded to.*"

(h) Isabelle Nierenstein, Dent. Lic. U.Kharkoff, 1904.

Salmon Koonin, Dent. Lic. U.Kharkoff, 1905.

A previous application from Miss Nierenstein was considered in May, 1922 (Minutes Appendix VIII) when it was not acceded to. She now appeals for a further consideration on the ground that a similar application was granted in M 1922, the applicant having stated that his course exten over four years. Miss Nierenstein claims that six mon elapsed between the passing of her preliminary examinat and her entrance into the University, during which she engaged in professional study, making her course four ye also, and seeks to support her case by giving particulars postgraduate work.

In a Satutory Declaration Mr. Koonin states that course extended over four and a half years, and that subjects studied included Chemistry and Physics, Mecha cal Dentistry and Dental Metallurgy, Dental and Gene Anatomy and Physiology, Surgical Pathology and Surger

In a certificate dated March 1, 1922, the Russian Cons General in London states that Mr. Koonin, having receive Diploma of Dental Surgeon from the Karkoff Universi had the right of practising as such in the whole of the forn Russian Empire.

Recommendation: ''That these applications be *accea to.''*

Rachel Hereensztein, Dent. Lic. U.Kieff, 1914.

Miss Hereensztein, having left Russia in August, 1922, been unable to obtain officially verified particulars of curriculum, the records of which she believes to be destroy but herself supplies a schedule which is certified, ''to best of his knowledge and belief,'' to be the essential prelim ary to obtaining the degree, by H. Levin, Dent. Lic. U.Kh koff, 1902, a registered dentist of the United Kingdom.

Miss Hereensztein entered the Gymnasium at Kieff 1903, and passed out with distinction in June, 1909, attenc the University course in the Medical Faculty at Kieff fr September, 1909, to December, 1910; became a student a Dental School recognized by the University in January, 19 and studied for three and a half years, obtaining her Diplo after examination in May, 1914. Her curriculum included the required subjects, but the General Hospital work was dc at a ''Surgical Hospital for 500 beds specially organiz for jaw cases.'' She held appointments at the Russian R Cross Hospital from September, 1914, and afterwards serv with the American Red Cross.

Recommendation: ''That this application be *not acced to.''*

(i) Paul Mercier, Swiss Federal Diploma of Dentist, 18 D.D.S. U.Penn., 1899.

From the particulars supplied by Mr. Mercier it appears
he studied dentistry at the University of Geneva and the
tal School of Geneva from 1890-96, that his course of
ly included all the subjects required of a British Student
pt clinical instruction in venereal disease, and instruction
Radiology, though his course of instruction in Dental Me-
nics covered a period of three hundred hours only, taken
he Dental College; that he passed the Examination held
he Federal Commission and obtained the Federal Diploma
une, 1896.

He has applied to Pennsylvania for particulars of his cur-
lum there, but these have not yet arrived.

Recommendation: "That the consideration of this appli-
on be *postponed.*"

Hédy Tcherniac (Miss), Médicin-Chirurgien Dentiste of
Geneva Dental College (Univ. Geneva), 1898, D.D.S. Ohio
nt. Coll., 1899.

Miss Tcherniac studied for the four years 1894-98 at the
iversity of Geneva, the Geneva School of Chemistry, the
lical School of Geneva, and the Dental College of Geneva
niv. Geneva). She took all the required subjects except
truction in Venereal Disease and Radiology, but including
attendances at Clinical Medicine and Surgery at the
ntonal Hospital, and daily attendance at a Dental Hospital,
luding instruction in Dental Mechanics, from October,
6, to July, 1898.

After obtaining her Swiss Diploma Miss Tcherniac was
nitted as a Senior Student at the Ohio Dental College
ing the Session 1898-99, and obtained the Degree of D.D.S.

Resolved: "Tha the consideration of this application be
tponed."

(4) *R.C.D.S. Ontario*—The Committee report that as a
siderable number of Licentiates of the Royal College of
ntal Surgeons of Ontario have had their individual appli-
ions for registration considered independently, and as
y have been acceded to, it has been suggested to the College
t a formal application should be made to the Council for
recognition of its Licence, with a view to its being placed
the list of qualifications admitting to the Register without
ther inquiry, and asking whether it would be possible for
College to admit to the Provincial Register persons pos-
sed of Degrees or Licences in Dentistry obtained in Great
itain.

The matter is still under the consideration of the College.

Vancouver Schools Dental Clinic

Valuable work in the interest of the health of the comm
unity is being carried on at the Vancouver schools denta
clinic. During 1922, 3935 appointments were made and 69
treatments were given, which included relieving toothach
treatment of abscesses, sore gums, cases of gingivitis an
others of like character. Fillings were inserted for 2,96
children, 1354 teeth extractions were made, 834 local anaes
thetics were administered and sixteen general anaesthetic
with nitrous oxide gas and 534 prophylaxis given i
addition to all cases which were completed. For the te
school months of the year, the dentists completed 1247 case

The great majority of the cases were handled free o
charge on the recommendation of the school nurses. Thi
large number was due, no doubt, to the abnormal condition
regarding unemployment, as the application cards invariabl
carried the phrase ''father out of work.''

The work of this school department is now all done at th
School Board offices, where the clinics formally operated a
the Strathcona, Tennyson and Florence Nightingale School
are centralized. By closing these clinics, it was possible t
reduce the dental staff by one operator and two women att
endants. At the School Board clinic four operators and tw
women attendants are employed. Dr. R. L. Pallen is th
chief dental officer, a position he has occupied for severa
years to the satisfaction of changing School Boards.

The dental department at the city schools was starte
in 1915, and those who have followed its work cannot spea
too highly of the beneficial results to the children. In 191
a survey showed that the number of children examined r
quiring dental attention was 94 per cent. By 1920 this wa
reduced to 68.7 per cent. The cases now coming before th
clinic are in no degree as serious as those in the first year
of operation as the youngsters have been educated in the car
of their teeth, and have since avoided neglect of their mouths
Regular instruction is given to certain classes on the care o
the teeth, and on Friday mornings the clinic holds a consul
tation class for the mothers of children in the receivin
classes.

So far as time permits Dr. Pallen and his assistants fol
low the children through the schools, keeping a check on th

condition of their teeth. This work has brought out the fact that the number of children who after receiving attention neglect their teeth is very low.

The cost of conducting the clinic is comparatively small, averaging eighty cents per pupil. As conditions improve in the economic world, the number of paying patients will doubtless increase, thus further reducing the cost to the city.

The dental offices are able to report many cases where, following attention to the teeth, a remarkable improvement in the health of the youngsters with a corresponding improvement in their schools' status has ensued.

Montreal Dental Study Circle

A regular meeting of the Dental Study Circle was held in Salon E., Mount Royal Hotel, on Wednesday, March 14th at 8 p.m. Dr. J. Rubin occupied the chair.

A record in attendance was achieved—including the guests invited in honor of Dr. Theodore Blum—forty-eight individuals sat down to a formal banquet.

After the dinner, the secretary read the minutes of the preceding meeting, it was moved by Dr. Pearson and seconded by Dr. B. Gold that they be adopted as read: carried.

Dr. Rubin then introduced the speaker of the evening, Dr. Theodore Blum, who gave an "Informal Talk on Oral Surgery." In the course of his talk, Dr. Blum covered a considerable number of conditions, as found in the mouth, indicating the methods of correction, surgically speaking, and more important still, ways and means to prevent their occurrence. Later, Dr. Blum, by means of lantern slides, illustrated various of these conditions as found in his practice.

The informal nature of Dr. Blum's talk, permitting of questions being put to him during its course, rendered the talk far more instructive and clear.

The discussion was opened by Dr. A. W. Thornton. Dr. J. Nolin also spoke. Because of the lateness of the hour, neither spoke at any lengths; but incorporated in their few words, an expression of thanks to the Circle for their invitation to the meeting and also to the lecturer, for his most interesting discourse.

Dr. A. S. Solomon moved a vote of thanks to the speaker which was seconded by Dr. Halperin: Unanimously carried and conveyed to Dr. Blum by the chairman, Dr. Rubin.

There being no further business, the meeting was adjourned at 12 p.m.

Respectfully submitted, N. Lande, Sec. D. S. C.

Ontario Dental Association

Toronto, May 14-17, 1923. *King Edward Hotel*

Dear Doctor:—

Are you planning to come to the Ontario Dental Convention in May?

You will be interested to know that the Committee in charge of the program have been fortunate in securing the services of the following eminent men of our profession:

1. DR. FRED. A. BRICKER, of Rochester, Min., who will present an interesting paper on Prevention, Prophylaxis and Periclasia.
2. DR. WALTER CAPPELLE,, of Buffalo, N. Y., on Full Debentures.
3. DR. SPENCE CLAPPISON, of Hamilton, Ont., on Cavity Preparation and Gold Inlay Technique.
4. DETROIT CLINIC CLUB, of Detroit, Michigan, on Root Canal Technique, and Radiography.
5. HAMILTON CLINIC CLUB, of Hamilton, Ont., Crown and Bridge Technique.
6. TORONTO CLINIC CLUB, of Toronto, Ont., Partial Dentures.
7. Many other individual Clinics.

PLAN to be PRESENT. We feel that *YOU* need the CONVENTION,and the *CONVENTION* NEEDS YOU.

Faithfully Yours,

W. L. Chalmers. M. W. Rutherford.

Publicity Committee.

American Dental Association

Cleveland, Ohio, Sept. 10, 11, 12, 13, 14, 1923

The program will be highly scientific. Subjects of every description in dentistry. Finest clinics by expert clinicians. Largest dental manufacturers' exhibit. Publc health exhibit extraordinary. A school of instruction for ALL.

8,000 to 10,000 Dentists are expected to attend this meeting which will be held in the new Auditorium that cost $6,500,000.00.

Hotel rates will not be advanced. Special Railroad Rates.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

Ontario—Carl E. Klotz, L.D.S., St. Catharines.

Quebec—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D.S., L.D.S., McGill University, Montreal.

Alberta—H. F. Whittaker, D.D.S., L.D.S., Edmonton.

New Brunswick—Jas. M. Magee, L.D.S., D.D.S., St. John.

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Manitoba—M. H. Garvin, D.D.S., L.D.S., Winnipeg.

British Columbia—E. H. Hetherington, D.D.S., L.D.S., Victoria.

Vol. XXXV TORONTO, APRIL, 1923 No. 4

Dental Advertising

The London, Ont., Advertiser has taken some pains to look up dentists' advertising as far back as 1865. It would appear from their records that three dentists in London advertised in the daily press. These advertisements are taken as an indication that it was the habit of dentists to so advertise. There is nothing to show how many dentists practised in London who did not advertise in the newspapers. By consultation with three London dentists, it appears that advertising was ethical up to 1911, when the Dental College in Toronto notified the profession that display advertising was hereafter considered unethical.

It may be said for the benefit of the London Advertiser that "Dental College" as defined in the Dentistry Act means the organized dental profession of Ontario and not the Dental School in Toronto. The profession of the province directs the profession and the dental school as well. The Dental College means the profession. The advertising in itself may not be unethical, but the dentist who resorts to such methods to drum up a practice is usually led to use attractive statements—(as well as attractive type)—which are not altogether within the truth.

The dental profession does not object to its members advertising their names, addresses, calling or their speciality in the press so long as they do not set out to inform the public how clever they are and what they can do for a dollar. Such advertisers get too enthusiastic about themselves and often lose sight of the value of a dollar's services. It is true there was a higher percentage of dentists who used the public press fifty years ago than now. It would be a pity if, after all these years of education, refinement and culture, dentists should continue to praise their skill and virtues in large red and black type so as to attract refined people.

What is Your Dental Ideal?

One of the fundamental ideals of labour organizations is to preserve work for its membership. In other words to do as little as possible so that the job will last the longer. Akin to this, and, associated with it, is the ideal to preserve one's knowledge of a subject to one's self so that it may be in great demand and thus command a higher money value. Secrets in manufacture belong to this latter group but all three are alike a scheme or plan to take advantage of the masses.

The professional ideal is to give freely of one's knowledge, do all in one's power to accomplish much in a given time, having no secrets with which to gain advantage over others.

Most dentists, individually and collectively, have passed through the labour organization and manufacturing organization ideals to the professional side. Still there are a few who hold fast to their secret methods of practice and hold them out privately, if not publicly, to their patients as reasons for consulting them rather than someone else. Groups of dentist often get together to advance themselves in their calling and refuse to admit those who really need their counsel and help more than themselves. If such groups advance themselves, their patients will gain, and if they have the good of the masses in mind, then why not by all means take in those who need it most?

Individuals and groups who do not help others who need it most by way of demonstration, clinics, talks, essays and reports, have not caught the professional spirit. There are scores of dental groups or societies in Canada who are now closing their year's work and have not published one line or one thought which might be of benefit to anyone outside of their groups. There are more dentists so situated in Canada that cannot attend such study groups than there are who can. Is it not a pity that they cannot have a chance to read what is done by those that can come together? Have group dentists who have no thought outside of their own membership passed from the labour ideal to the professional ideal? Many individuals make but few groups. The dental magazines are ready to publish all kinds of reports of such societies so that those who cannot attend may learn and that a historical record may be kept of dentistry.

Impressing the Public

There is nothing in dental literature or dental equipment or dental addresses that shows the profession in so poor a light as the eternal exhibition of the desire to impress patients. Dental offices are located in expensive and attractive localities, the rooms, lighting and equipment are noticeable and splendid in appearance, the walls and furniture shine and glare while instruments stare from every corner. An instrument cupboard with a glass front is filled with plated goods and the dust of weeks, not to mention millions of pathogenic bacteria, and, on the top is marked *"Sterilizer."* The modern idea is to have a sterilizing room with glass doors showing into the operating room and the waiting room. There is a girl dressed in white, boiling instruments in a shining sterilizer and carrying them to the dental cabinet in her hands from which they are used on a patient. The dentist must wash his hands in a basin beside the chair so the patient may hear or see him do it. As if such washing were a real protection from transmission of infection, when the dental handpiece or the handles of the chair, the cabinet, the bracket, the door knob or the telephone are besmeared with organisms! It is sheer nonsense, and every dentist knows it, to boil root canal broaches and then wind cotton on them with unsterilized fingers. He also knows it to be all bluff when he sterilizes his steel instruments and then uses towels, wipes, packs, dressings, cotton wool, paper points, and rubber dams which are not sterilized.

Dental literature, and especially so-called post-graduate courses, just teem with expressions and examples of how to impress patients. If dentists choose fine locations, extravagant furnishings and showy equipment to impress their patients, they are not honest. There is a suitable location and suitable equipment which may be chosen and, in the long run their adoption will show common sense. Why should an honest man need to show a patient that he sterilizes his instruments?

Editorial Notes

The London Advertiser makes the following comment on the Royal College of Dental Surgeons desire to prohibit unprofessional advertising. "In some places dentists unite on a campaign for publicity, showing the advantages of good and frequent dental attention. This is only a few steps removed from the man who steps out and asks the printer to print his announcement where all may see it, in the daily press.

"Professional advertising may be making slow progress, but it is coming."

Under the auspices of the St. John Ambulance Association, the dentists of Saskatchewan are to give a number of lectures on dentistry.

Dr. A. L. Legro of Detroit gave a lecture demonstration on porcelain inlays at the Royal Connaught Hotel, Hamilton, March 3rd., 1923.

Mr. W. H. Silk, Toronto, was fined in the police court for practising dentistry without a license.

OBITUARY

George Burwell Snow, D.D.S.

Dr. George Burwell Snow died February 15, 1923, in his 88th year, at his home in Long Beach, California, completing a life of quiet, unselfish service to his fellow man, his profession and his immediate associates.

Dr. Snow was born at Sandusky, Ohio, August 28, 1835. The next year the family moved to Buffalo, N. Y., where the father, a physician, took up the practice of dentistry. Unskilled as an orator, he found difficulty in expressing his ideas generally in public, and so lost the pleasure of being lionized by his profession to the degree that his service to them merited. Modest, unassuming and lovable, he was seen to best advantage in his study, laboratory or workshop, where those who sought help always received his most thoughtful attention, often to the detriment of his own personal interests.

In 1857 he began the study of dentistry in his father's office, and in 1859 was graduated from the Pennsylvania College of Dental Surgery. He opened an office in Addison, N. Y., but after going to Chicago, where he had instruction in porcelain block work, and to Albion, Mich., where he had his first instruction in vulcanite, he returned to Buffalo in January, 1863, and again entered practice with his father. During the winter of 1865 he attended medical lectures at the University of Buffalo.

In 1865, in association with Dr. T. G. Lewis, he invented and manufactured the Snow & Lewis Automatic Dental Mallet, and later with others, organized the Buffalo Dental Mfg. Co., of which for several years Dr. Snow was the factory manager and president. In 1873, withdrawing from the active management he re-entered dental practice, but nine years later gave up practice and devoted himself to the affairs of the Company until 1901 when he withdrew entirely from this Company and formed the Snow Dental Company, whose policies he directed by correspondence.

In 1892 Dr. Snow aided Dr. W. C. Barrett and others in forming the Dental Department of the University of Buffalo. His first position in the session of 1892-3, was Librarian and Clinical Professor of Mechanical Dentistry.

Sessions 1893-4 to 1895-6, inclusive, Clinical Professor of Mechanical Dentistry.

Sessions 1896-7 to 1903-4, inclusive, Professor of Prosthetic Dentistry.

Sessions 1904-5 to 1912-13, inclusive, Dean and Professor of Prosthetic Dentistry.

Since 1913-14, Emeritus Professor of Prosthetic Dentistry.

Dr. Snow was also one of the organizers of the Buffalo Society in 1864, and of the Western New York Dental Association. These societies later became the Seventh and Eighth District Societies.

Since his retirement, Dr. Snow had devoted himself to research studies in the properties and vulcanite.

Dr. Snow made many inventions; the Face-bow and New Century Articulator are probably his best known. His Compensating Vulcanizer, placed upon the market in 1918, is, in the opinion of prominent prosthetists, destined to become the standard in practice and a fitting monument to his inventive genius.

Dr. Snow's patents are: Snow & Lewis Automatic Plugger, an improvement on the Whitney Vulcanizer, Index Gas Regulator, Challenge Gas Regulator, Kerosene Regulator, Valve for Timing Attachment, New Model Buckeye Vulcanizer, Richmond Vulcanizer, Compensating Vulcanizer, Snow & Gritman Articulator, Snow Face Bow, New Century Articulator, Acme Articulator, Saliva Ejector, Trial Plate Clamps, Condyle Indicator, Platform for Articulator, Improved Safety Disc and Snow Spring Mallet.

His inventions and research, confined largely to the field of Dental Prosthesis, have received recognition all over the world and have been of incalculable assistance to his profession and of great benefit to the human race.

During the last few years Dr. Snow's sight became so impaired that he could see very little, and Mrs. Snow, who survives him, was his constant companion.

Dr. Henry H. Way

Death removed one of the oldest practising dentists in Western Ontario, last month, in the person of Dr. Henry H. Way of St. Thomas.

Born in Kenneth Square, Pennsylvania, on July 26, 1848, Dr. Way came to Canada shortly after his graduation from the Pennsylvania College of Dental Surgery and entered the Royal College of Dental Surgeons, Toronto, afterwards practising in St. Thomas 41 years. He retired from business some months ago on account of ill-health.

He was one of the best known and most highly esteemed residents of St. Thomas and was known to the dental profession all over the Province. A member of the Friends Church, Sparta, he will be missed by a wide circle of acquaintances in that district.

Besides his widow, deceased is survived by his daughter, Mrs. Streith, and three sons, Asa P. of Lansdowne, Pa., Ellwood, of Bayshore N. Y., and Ian, of Harriston, Ont.

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Dominion Dental Journal

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ORIGINAL COMMUNICATIONS

Suggestions for the Conduct of Public Dental Services for Children

A. E. Webster, Dean, Royal College Dental Surgeons

This pamphlet does not pretend to be a treatise on the care of children's teeth, but only hopes to give direction to the work.

Whatever the public knows of Dentistry has come from dentists. Out of this teaching there is an ingrained notion that children's teeth need no attention other than extraction. Dental Officers often find this an obstacle to successful dental care of the young.

It is well nigh impossible to lay down rules of procedure or practice that would be suitable for all forms of dental hospitals or school clinics. The equipment, the age of the patients and the number to be cared for must largely govern the procedure. Fortunately dental practice for the young especially gives full value for whatever effort is put forth. Teeth will last long or short depending upon the skill, conscientious effort and care, with which they are treated. In most Clinics, all cannot be treated, so the greatest good must be done for the greatest number. Long or tedious treatments cannot be undertaken no matter how desirable if by so doing several other teeth are lost for the want of care. Experience must be the guide for every clinic and for every Clinician as to what teeth must be extracted, filled or treated. In some Clinics, no deciduous teeth are filled, in others neither permanent nor deciduous teeth with non-vital pulps are treated, in still others no pulps are devitalized, while few, if any, do orthodontia.

Examinations should record anatomical defects and deformities, accidents, deficiency or excess of teeth, malocclusions and pathology of the teeth, jaws, gums and mucous membranes.

Cleft Palate and Hare-Lip

Advise the parents or guardians to see a good surgeon who makes a specialty of such work, especially one with a dental training.

Retarded Eruption of Babies' Teeth.

If unduly late advise consulting the family Physician.

Diseases of Dentition. (So called)

After consultation with the family physician, it may be found desirable to lance the gums.

Defective Enamels.

In deciduous teeth, apply nitrate of silver direct with pencil (lunar caustic) or 40% solution on cotton wool. In permanent teeth, grind off the rough cusps in molars, repair with copper Amalgam. Fill incisors with Silicate only removing such decay as is necessary. Later when the child is older and the pulp receded, a more permanent operation may be made.

Deformed and Exessive numbers of Teeth.

A peg shaped tooth appearing in the upper mid line must not be mistaken for a peg shaped lateral. Supernumary teeth should be removed. Occasionally a normally formed tooth is so misplaced that extraction is advisable.

Lacking teeth is a rare condition in the deciduous set. Not unusual in permanent. Missing teeth are Laterals, Lower Second Bicuspids and Third Molars. If there is doubt, have X-ray pictures made before extraction.

Malocclusion:

An early diagnosis is desirable because the correction of a bad habit may prevent further progress. Records might well be made of the condition of occlusion in suspicious cases.

Bad Dental Habits of Children:

Sucking the tongue, the lips and fingers. Biting nails and lips. Sucking food and not chewing. Bolting food. Protruding the lower jaw. Avoiding sore teeth in mastication.

Accidents:

(a) Fractures of enamel exposing dentine, smooth and polish.

(b) Deep into dentine. Cover with Cement, pulp may die. Leave permanent filling to be done months later.

(c) Exposing the pulp. Cap if small.

(d) If pulp must be devitalized and the root end not naturally closed, failure is likely.

(e) If root end closed and tooth split more than four m. m. under the gum or the root fractured, extract.

(f) Tooth dislocated,— disinfect, remove the pulp and replant. Fractured deciduous teeth involving the pulp, might better be extracted. Dislocated deciduous teeth should not be replanted.

Defects in pits and Fissures:

If beginning caries is imminent, Nitrate of silver followed by red or black oxy-phosphate of copper, squeezed into the fissures with the finger offers good results. If decay has begun it should be cleared out with hand instruments and the cavity filled with copper amalgam. Better not use copper amalgam or cements on proximal surface cavities if the full width of the teeth is to be maintained.

Order of Dental Operations:

Patients who have been regularly attended in the clinic and have no pain should have those operations begun which are going to take the longest time.

Unless a careful plan and sequence of operations is laid out, much time will be lost.

Complete operations in as few sittings as is consistant with proper care of the child.

Former operations and effect of oral hygiene should be observed. It might be well to have a large hand mirror so the child can see for himself what his teeth look like.

Patients First Visit, and those Suffering pain.

(a) Relief of pain.
(b) Talk about teeth and food, and how to chew.
(c) Tooth Brush and brushing.
(d) How to brush the teeth.
(e) Prophylaxis.
(f) Extractions.
(g) Treatment and after care of extractions.
(h) Fillings.

Special care should be taken to prevent decays on the distal surfaces of second temporary molars, lest the first permanent molars drift forward as well as the mesial surface becoming carious.

Diagnosis of Pain:

Pains in young patients are most commonly caused by infection and trauma.

Infection of pulps is usually direct from the mouth through a cavity in the tooth. The peridontal membrane is infected from a dead pulp.

The pain of pulpitis comes on so suddenly and is intermittent while the pain of peridontitis comes on more gradually and is persistent.

In pulpitis the peridontal membrane is not likely to be sore while in peridontitis the membrane is sore, the tooth elongated and some swelling or soreness on palpation over the root. Pressure is the cause of the pain in each case. This may be relieved by local anaesthesia depleting the part by counter irritation or blood letting or lowering the general blood tention.

Relief of pain: Pulpitis.

Remove as much decay as possible without pain.

Apply cloves and phenol on cotton, if the pain is not relieved in fifteen or twenty minutes it may be necessary to open the pulp chamber where cocain may be applied.

Peridontitis:

Drainage, counter irritation, protect the tooth from occlusion by cement on the crowns of other teeth. Internal remedies,— Aspirin etc., extraction and lavage.

Pain from Trauma:

Cold application at first, warm applications later.

Put the parts at rest.

Counter irritation.

Tests for Vital or non-vital pulps:

History of accidents or dental operations.

Color.

Response to heat or cold applied to the tooth.

Sensitive or non-sensitive dentine.

Faradic current.

Peridontal membrane slightly sensitive if pulp is dead.

Power of mastication is greater on vital teeth.

Indications for Extracting Sound Vital Teeth:

1. When the regular time for the physiological loss of the tooth has arrived, as indicated by the age, size and development of the child. The progress in the loss and development of other teeth is an aid in determining when to extract.

2. If the crown of a tooth whose roots are absorbed is wedged tightly between two other teeth and is interfering with the development of normal occlusion.

3. If there is evidence that absorption of the root is not taking place and the time has arrived for the permanent tooth to appear and the presence of the latter in the process is known.

4. Though the deciduous tooth is not loose, it should be removed if the permanent tooth is coming in malposition.

Note:—

A child should be encouraged to loosen and removed its own deciduous teeth, but if a tooth becomes malposed or sore to bite upon, it should be removed at once.

Premature and meddlesome extraction should be avoided.

Be prompt to assist and guide nature, but do not meddle.

Indications for Extracting Diseased Teeth:

Pulpitis:

Extract in cases of pulpitis any time within eighteen months of the normal time for the loss of the tooth except the anterior teeth and the first temporary molars which might be removed at an earlier date.

Infected Pulpless Teeth:

All infected pulpless teeth, whether paining or not, should be extracted with the possible exception of the second molars and cuspids.

Teeth which can only be kept comfortable by leaving open cavities in the crowns or drainage through a sinus or puncture into the pulp chamber through the root, should be extracted.

Deciduous tooth roots which have been the seat of an acute inflammatory process do not absorb normally and should be removed at the proper time to make way for the permanent teeth to follow.

Indications for Capping Exposed Vital Pulps:

(a) Accidental non-infected small exposures.

(b) Recent exposures from decay may be capped sometimes.

How to cap a Pulp Exposure:

Accidental small exposures;

If blood absorb with spunk. Apply direct to exposure with small ball burnisher, a paste of oil of cloves and oxide of zinc. Cover this with cement without causing pressure. If no discomfort, the surface of the cement may be removed and a more permanent filling inserted at a later date, if found possible or convenient.

Exposures from Decay.

(a) First Method.

First sitting. Remove decay. Wash out with tepid water. Dry. Apply a paste of oxy-sulphate of zinc and oil of cloves.

Second sitting. If all decay removed at first sitting, then only remove enough filling to make permanent operation.

(b) Second Method.

First sitting. Remove decay. Apply Dakin's solution or cloves on cotton, seal with cement.

Second sitting. Remove dressing. Apply oxy-sulphate and cloves paste, cover with cement. If pain, pulpitis or infection follows, extract.

Lining of Deep Cavities.

Remove decay. Rub bottom of cavity with nitrate of silver pellets. Apply a varnish or soft cement. Make permanent filling over this.

Devitalization of Pulps:-

Where Arsenic may be used:-

1. Not until two years after the eruption of a tooth.
2. Not within two years of the time of the loss of a tooth.

Arsenic may be used between these periods.

A very small quantity of arsenic should be used, and not allowed to remain in place for more than twenty-four hours, better less. In all other cases use novocaine or phenol and pressure or nitrate of silver. In partially dead pulps, or cases where all the tissue is not removed, use Howe's silver nitrate solution "A" followed with formaldehyde, and fill canal with an antiseptic root canal filling. It is always unwise to fill a root canal at the same sitting that strong irritating drugs are used.

Treatment of Infected Teeth.

Infected pulpless deciduous second molars and cuspids should under favourable conditions be treated if there be no contra-indications of general health or loss of peridontal membrane.

The cavity should be opened freely and washed thoroughly with water. Tri-cresol and Formaldehyde sealed in the cavity if there is a wet canal. If dry, use oil of cloves, camph phonique or Cresol. If there is no trouble at the end of two or three days, the canal should be cleaned out as carefully as possible and filled with an antiseptic root canal filling, sealed with oxychloride and cement. The crown filled with amalgam. If acute pain occurs the tooth should be removed.

Abscess with a Sinus.

If a second molar or cuspid develop an abscess with a sinus, open the cavity freely wash water through with an abscess syringe or from moistened cotton covered with raw rubber. Follow this with Beck's Bismuth Paste and fill the crown with cement or amalgam.

Indications for Extraction of Permanent Teeth.

1. Extract every tooth from which infection cannot be removed and the tooth made comfortable and useful.
2. Extract all teeth which serve no useful purpose in the mouth.

Note:- Teeth may be extracted for purposes of orthodontia or prosthodontia.

3. Extract every tooth with pulpitis whose pulp cannot be removed and the canals properly filled as may occur because of position, location of the tooth, or because of anatomical form.
4. Extract every tooth which is the seat of acute apical peridontitis or peri-apical abscess if the pain is intolerable and cannot be otherwise relieved, or if there are grave systemic symptoms or if there is reason to believe that there is such a destruction of the peridontal membrane that the tissues will not return to a normal condition.
5. Extract every tooth root which has been the seat of one or more acute infections or a chronic infection extending over some years which has detached any considerable portion of the peridontal membrane or rendered the tissues of the root dark or grey in color.
6. Extract every tooth from which there has been lost by disease a half of the peridontal membrane, beginning at the apex.
7. Extract all teeth with exposed pulps, infected teeth or paining teeth for patients suffering from Syphulis, tuberculosis, endocarditis, general septicemia, severe arthritis, severe anaemia or diabetus. Extract every tooth with a dead and infected pulp whose root end is not normally closed, except upper incisor.

Extraction of first permanent molars.

If the deciduous teeth are in place and will hold the bite in normal separation, and the second molars have not erupted and two lower first molars and one upper first molar must be extracted then remove all four or if two lower first molars are to be lost remove all four, but if two uppers are to be lost do not extract the lowers. If two molars on the same side must be extracted do not extract the teeth on the other side but if a molar on the lower left side must be lost and one on the upper right side, extract all four. If the only teeth keeping the bite open are first molars, retain them until the bicuspids or the second molars come into normal position, then determine whether to extract or not.

(2). *Indications for Capping Exposed Vital Pulps*:

1. It is desirable to cap the pulps of teeth whose roots are not yet fully developed.
2. It is often desirable to cap the pulps of teeth in patients who are very young, very old, enfeebled by disease or pregnancy.
3. Small traumatis exposures of less than half a m. m. in area.
4. Exposures made in attempts to remove decayed tissue may sometimes be successfully capped after disinfection.

(3). *Indications for Devitalization of Pulp.*

1. Paining pulps-
   a. If pain is started by heat and relieved by cold.
   b. If pain is due to infection and has lasted for over an hour, especially at night.
   c. All exposed pulps where capping is not deemed advisable.
2. Non-paining pulps-
   a. In rare cases for prosthetic purposes.
   b. Known pathological pulps which are liable to acute infection or extension to alveolar tissues.
   c. All exposed pulps where capping is not deemed advisable.

(4). *Methods of Devitalization in order of Preference*:-

(a) Pressure Anaesthesia - hand pressure or high pressure.
(b) Absorption Anaesthesia.
(c) Infiltration ”
(d) Intrasosseous ”
(e) Conductive ”
(f) General ”
(g) Poisons - In certain cases where it is not expedient to use any of the above methods, a small quantity of arsenic may be applied to vital dentine and sealed in for twenty-four hours.

Other poisons, such as phenol, mineral acids, Howe's silver nitrate solution A, or sodium and potassium may be used to advantage in dealing with partially devitalized pulps.

No devitalization or root treatment to be attempted unless canals can be kept dry during treatment.

It is highly desirable that the tissue filling the funnel shaped opening at the apex of the root of a tooth should be kept vital. Therefore care must be exercised to avoid passing broaches or drugs through apical openings.

Infected pulp Canals of Permanent Teeth:

The Physical condition of the patient and the peridontal membrane determine what treatment should be applied to infected permanent teeth.

Young patients in good health whose root canals have not been long infected, and the apex normally closed should receive conservative treatment.

The regular medical treatment of root canals will usually succeed if the peridontal membrane is not detached from any considerable portion of the root. An x-ray picture is of assistance in making a diagnosis of the condition of the peridontal membrane.

Molars and lower teeth with much peridontal distruction should be extracted. Single rooted upper teeth may be treated medecinally for a week or two and if after a test filling of a month or more there is remaining moisture, odor, swelling or pain surgery should be invoked.

Surgery of Root ends of upper single rooted teeth.

(a) If the peridontal membrane is little if any involved make a sinus and treat as such.

(b) If the membrane is not much if at all involved but an area about it is involved as may occur in cysts, granulomata or chronic abscesses these should be curretted.

(c) If the root end is roughened it should be smoothed off with files burs or stones, the canal washed and disinfected root filled and opening in the gum allowed to heal.

(d) If the end of the root has been stripped of membrane this portion should be removed.

The success of both medical and surgical treatment of infected roots of teeth depends largely upon a correct diagnosis, careful treatment and subsequent trauma.

Alveolar Abscess with a Sinus:

If the root end is not deeply covered with bony tissue, a sinus forms without much distruction of the peridontal membrane and can be treated with prompt success, but if the sinus only formed after much pain and severe swelling, the chances are there has been much involvement and treatment is not so simple. In most of these cases surgery is necessary.

Much as a truly conscientious dentist in public service dislikes to remove a tooth for a young patient yet he may find it necessary to do so in the interests of many others who demand his attention where ten teeth can be preserved in the time it takes to treat one.

Department of Public Health, Toronto

ANNUAL REPORT OF DENTAL SERVICE, DEPARTMENT OF PUBLIC HEALTH, TORONTO, 1922.

Edmund A. Grant, D.D.S., Director Dental Services, Department of Public Health, Toronto

During the year 1922, the Department of Public Health conducted eighteen operative clinics and four extraction centres in the public schools, five clinics in the separate schools, also clinics in the out-patient departments of the General, St. Michael's, Grace, and Western Hospitals. This work was carried on by a staff of thirty-five dentists on half time duty, under a Director of Dental Services.

Every child is examined once a year and a report of the mouth conditions found is sent to the parent. This is of great value as parents are thus kept informed of the changes which may occur so rapidly in the developing child and sometimes warned of serious dental disease before irreparable damage is done. Realizing that prevention is of most value, the dentist in his talks to the children on the anatomy and hygiene of the mouth and teeth, teaches the relation of diet to the teeth, approved methods of brushing, and the importance of their care. This instruction is followed up in the health lessons given by teacher and nurse, so that the school child of today has a very creditable knowledge of these most important matters. This is shown by their written essays, clever drawings and posters.

The work accomplished in 1922 is briefly summarized in the following figures.

Summary of Work of Dental Service for Year 1922. *In Public and Separate Schools.*

Number of children examined	73,581	
Percentage found with dental defects	42,378	or 58%

Number of children treated	38,399
Number of children completed	21,851
Deciduous teeth extracted	33,831
Permanent ” ”	3,191
Local Anaesthetics	10,256
General ”	1,567
Treatments	23,482
Prophylaxis Treatments	5,685
Amalgam fillings	24,223
Oxyphosphate of zinc fillings	2,710
Oxyphosphate of copper fillings	9,871
Temporary and other fillings	5,318
Total number of fillings	42,122

Note: These figures include work done in summer clinics conducted during the holidays, in two public schools, St. John's Industrial School, the Sunnyside Orphanage, the Preventorium and Victoria Park and High Park Forest Schools.

No School Dental Service could hope to overtake its problem without some supervision of the child before entering school, from at least three years of age. That prenatal conditions also are most important is evidenced from the fact that the first teeth commence to develop about six months before birth and the permanent teeth about two or three months before birth. At seven years of age this development while not complete, has proceeded so far that improvement in the tooth structure is much more difficult to effect. This service therefore endeavors to co-operate with the prenatal and child welfare division of the Department, through talks to mothers on the importance of diet in its relation to the teeth through this early period. Twelve of these talks were given during the year.

One half day per week is also reserved in each clinic for pre-school children. The advice given to mothers as to care of children's mouths is followed by early treatment when necessary. It is safe to say that with proper dietetic habits and monthly visits to the dentist for prophylaxis treatment, that development of dental caries could be prevented.

Summary of Work in Hospital Dental Clinics

Number of patients treated	15,492
Extractions	14,170
Local Anaesthics	2,637

General Anaesthics	944
Treatments	1,789
Amalgam Fillings	271
Cement Fillings	324
Temporary Fillings	373
Full Dentures	869
Partial Dentures	800
Repairs to Dentures	295
Reset Dentures	47
Crowns	13

This report includes work at the Women's College Hospital and the Industrial Refuge.

An important decision as to Hospital Dental Service was made by Dr. Hastings towards the end of the year. Believing that the work of his Department is educational and preventive and that Hospital Dental Service had been undertaken, simply to demonstrate to the hospitals the value and necessity of a Dental Department, he felt that as this work had been carried on for a number of years by his Department, the hospitals might fairly be asked to assume the responsibility. He therefore made the following recommendation to the Hospitals Commission.

That as the Dental Clinics established and conducted by the Health Department in the various city hospitals had fully demonstrated the necessity of this particular service, and further, inasmuch as the time has now come, in the light of modern klowledge, when Hospitals and the medical profession generally, fully appreciated the important role played by defective teeth, diseased teeth and gums, so far as diseased conditions of the body generally are concerned, and also as an aid to diagnosis, and that consequently, this should, in his judgment, constitute essentially a part and parcel of the general routine clinic teachings and administration of every hospital, just as positively so as do the special branches of eye, ear, nose and throat, etc. The Hospitals Commission fully concurred in this opinion and as a result, the hospitals were requested to take over this work and organize it as a part of their clinical administration and thus relieve the Department of Public Health of all responsibility in connection therewith, this transfer of responsibility to date as from December 31st, 1922.

The Department, however, carried on till February 15th, 1923, in order to give the hospitals sufficient time to organize their own service. It is gratifying to note that they all decided to continue the Dental Service.

The Department lost the valued services of Drs. W. W. MacDonald, G. S. Murray and R. W. Hoffmann who resigned to devote all their time to private practice. Drs. J. M. McLeod, J. C. Livett and R. M. Freestone were appointed to the vacancies and the Separate School Staff was increased by the addition of Dr. J. F. Porter. The success of the year's work is entirely due to the loyal co-operation and faithful service of the entire staff. Dentistry for children is most exacting work and the man who carries it on successfully the year round in a public service where the financial rewards are not equal to those of private practice, must be animated by a love for children and a sincere desire for the higher forms of service.

The work covered in this report represents a contribution to the welfare of the Community which would be hard to value in dollars and cents but those who are in daily touch with school life and see the improvement in mouth conditions and general health, bringing an increased self respect and keener mental effort consider it as something more than worth while.

Report of Dental Clinics, Hamilton, Ontario

In King George and Caroline Street Schools, for the Year ending October 31st, 1922.

To James Roberts, Esq., M. D.
Medical Officer of Health.

Sir:—

During the past year the requests received for dental treatment in the School Clinics have increased greatly, which is indeed a favorable indication of the interest which is being taken in the work of the Clinics.

In reviewing the past year's work which has just been completed, with general survey of all the Schools, it is very gratifying to those in charge to find but fifty six per cent of the pupils requiring dental treatment. While this may seem a large percentage of defectives, when one considers that our survey two years ago showed over eigthy per cent. of the children in need of dental treatment, the improvement is great and proves that our work in the schools and dental Clinics has been very much worth while.

During the course of the past year the two clinics, on half time, have given treatment to four thousand children.

This means that another four thousand have been treated by their family Dentist as advised during our examination.

Admirable as the increase in school dental service may be, we must strive to popularize preventive dentistry. Our children may leave school with healthier mouths, but unfortunately they are not coming into the schools with fewer cavities to be filled by the school dentists, as our records show. To overcome this, the public must be educated, or our dental facilities increased to care for the children of pre-school age.

The key work to "prevention" is "education" and the prejudice and ignorance handed down, must be counteracted by education. Parents must be aroused to the realization of the importance of the first teeth, of the six year molars and of all the cardinal point of dental health. It might be suggested, in striving for this objective, that more emphasis be laid on this subject in the normal schools and the training schools for public health Nurses.

Wisdom teaches to cure evil at its source. Prevention with children is much better than cure with adults.

Below is submitted a detailed report of the year's work:

Total treatments	6,542
Total extractions	4,120
Fillings	
Amalgam (silver)	2,807
Petroid Cement	1,198
Copper cement	1,571
Enamel (synthetic)	232
Gutta percha	2,775
Temporary	232
Silver nitrate	4,481
Miscellaneous operations	571
New cases	3,280
Completed cases	2,464

Dental inspection of 18,553 pupils.

Individual Statement of Each School Surveyed, 1922.

School	Number inspected.	Number requiring treatment.	% requiring treatment.
Central	476	231	48
King Edward	415	295	71
Allenby	410	240	58

Murray	237	165	65
Cannon	312	163	52
Ryerson	582	302	51
Earl Kitchener	788	440	56
Bennetto	1,010	671	66
Hess	722	491	68
Strathcona	820	520	63
Caroline	350	150	42
Prince of Wales	875	499	55
Gibson	960	602	62
Wentworth	720	401	55
Lloyd George	585	301	51
Queen Mary	945	501	53
Fairfield	450	220	48
King George	945	421	44
Memorial	1,400	600	42
Adelaid Hoodless	965	405	41
Robert Land	1,020	721	70
	14,987	8,339	55%

This report shows a vast reduction in the number of children requiring dental treatment, due, not only to the increased number cared for in the clinics, but also the interest stimulated by the annual survey of the children when a report is sent to each and every parent informing them of any dental defects in their children.

That this advice is acted upon is evident from the continually improved condition found annually upon inspection.

W. G. Manning, D.D.S.
H. A. Thompson, D.D.S.

To James Roberts, Esq., M. D.
Sir:—

In presenting the first annual report of the Health Centre Dental Clinic, it will no doubt be gratifying to note the great amount of work which has been accomplished here during the first year. In this connection it might be stated that there was no dental survey of the schools, from which children come to this clinic, made until October, so that the results of this are scarcely noticeable in this report. When this is taken into consideration it shows that we are getting very good co-operation from parents and all those connected with this work, and their assistance is greatly appreciated.

This Clinic, which is situated at the Health Centre, is open every School day from 9 to 12 a.m. and from 1.30 to 5 p.m.; also Saturday morning from 9 to 12 a.m. The children who come here for treatment, are from the fourteen Separate Schools situated throughout the city, and four public schools which are in this vicinity. In addition to children of pre-school age, deserving adults are looked after.

The inspection which was recently made of the 5,655 children under our jurisdiction, showed that there were 4,766 or 83% requiring treatment. Since the parents' notification cards have been sent out, there have been a great number apply for treatment, and the result of this should be very noticeable later on. The parents are taking a greater interest in the children's teeth, and indirectly in the children's health, as there is no doubt that the former has very much to do with the latter, and parents are realizing this more than ever.

Below please find detailed report of the year's work done in this Clinic.

Total treatments	5,675
Total extractions	2,834
Fillings:—	
Amalgam (silver)	1,821
Synthetic (enamel)	325
Copper Cement	2,956
Petroid Cement	90
Gutta Percha	1,322
Root Fillings	240
Silver Nitrate	367
Pulp removed	79
New cases	1,882
Completed cases	1,142
Gas cases	60

DENTAL SURVEY OF SCHOOLS

Public Schools	4
Separate Schools	13
Total Number of children inspected	5,655
Total Number of children requiring treatment	4,677
Percentage requiring treatment	82.706%

J. E. Dores, D.D.S.
J. L. Stewart, D.D.S.

A Report on Dental Work Carried On in the Public Schools of St. Catharines

This work was commenced on April, 1921. Since that time three surveys have been held. As the card system at the previous surveys was not completely satisfactory we used the one recommended by the Department of Education at the last survey and can therefore give you a detailed account of it.

The staff on this work is as follows:—

One Dentist—Working three hours per school day.
One Lady Assistant—Same.
One Medical Nurse—Gives part time to this work.

The results are as follows:—

Total number of pupils on roll in September, 1922,	3,004
Total number of pupils examined at survey, Sept., 1922,	2,673
Total number of cards returned of those with no defects	139
Total number of cards returned which have been signed by family Dentist	228
Total number of cards returned asking for treatment (including those completed to date)	1,173

Note:—Only about 87% of pupils were actually examined, there being some absent at all Schools during the survey; also, a few avoid the survey. Of those examined data can be obtained only from cards returned.

Of 2,673 examined, 195 showed no defects by the counterfoils, that is 7.2% of those actually examined.

The above figures show that out of 2,673 examined, only 1,640 cards were returned, therefore there are 1,133 cards missing.

Of these 1,540 showed no defects; 228 signed by family dentist as complete.

In each Class room as the Survey was completed, a short talk was given on Dental Hygiene and an effort made to get the co-operation of the teacher.

REMARKS:—1,173 asked for treatment. Possibly one third of these may be eliminated by inquiry into their neediness, leaving 782 who should receive attention.

We usually complete about eight (8) cases per week; therefore during school year, which is forty (40) weeks, deducting ten weeks for survey, the total number completed would be 240. This shows the work to be about three times what one Dentist can attend to in one half day.

This would be further increased if "Follow-up-work" could be done by a Nurse to get in the remainder of the cards, (chiefly those of the more ignorant class who need teaching as to the value of the Dental Clinic to them).

There is need of much more "Follow-up-work."—1st. to get cards all returned, which would show a large increase in demand for Clinic work. 2nd. To look into cases, which these cards represent and to find out if they are unable to pay for their own dentistry.

Richmond H. Atkey,

Report of F. J. Furlong, Windsor, Ont.

The Separate School Board of Windsor opened a Dental Clinic in their Schools in the fall of 1921. It was of the itinerant class and practically no records were kept. In September, 1922, I was appointed Dental Officer for the Separate Schools here and made arrangements with the Board to establish a centralized School Dental Clinic. This was done immediately. Our method of operation is as follows:—An inspection of the children attending the various schools is made by the Dentist and cards are issued to the children receiving Dental treatment and on these cards is printed a request for the work to be done by the family Dentist, but if the parent or guardian wishes the work to be done at the school Clinic, a space is left for this request and when the card is returned the child is given a permission card for the parent to sign. When this is done, appointments are made.

My time spent at the Clinic is 5 half days a week (mornings) and since the opening of the Schools last September the following work has been done.

School children inspected and cards issued, ...	2157
Amalgam fillings (permanent teeth)	302
Copper Cement fillings, Permanent and deciduous teeth	248
6 year Molars (pulps capped)	19
Treatments (stop toothache)	14
Prophylaxis	260
Extractions	592

Up to April 1st, 1923, we did not keep a record of the number of permanent and temporary teeth extracted, or whether an anaesthetic was used. We are doing so now however.

Silicates	10

We found from our school inspection that about 96% of the children needed Dental treatment of some kind.

F. J. Furlong.

An Extract from the Report on Diet for the Committee of Research of the American Academy of Periodontology

By Andrew J. McDonagh, L.D.S., Past President

The results of research work which have been carried on in various parts of the world during the last ten years show that conditions of the body are either controlled or greatly influenced by the food partaken of by the individual. This is true of all parts of the body, the periodical tissues not excepted. Furthermore during the formative period at least, not only the character of the periodontal but the dental tissues is governed by the food ingested.

The work of Dr. and Mrs. Mellanby seems to leave no doubt as to the foregoing. The experiments of Mrs. Mellanby on dogs go to show that the form and quality of the bones of the jaw and the alignment of the teeth depends to an almost incredible degree on the constituents of the food consumed during the formative period; consequently the early feeding of the growing animal carries its influence so far as the periodontium is concerned, right through the span of life. But not only is food an important factor in the growing animal, the adult as well is affected by the character and constituents of his food. Scurvy, which is solely the result of a deficient diet manifests itself as a destroyer of the periodontal tissues, resulting in many cases in one form of the disease we recognize as dental periclasia. Until recently the origin of this phase of dental periclasia was not recognized because we had not thought of scurvy in any sense except as we see it in an extreme case. We are indebted to Dr. Hess, who has taught us that one of the effects of a scorbutic condition is to cause the blood vessel walls to deterioriate so that the blood will break through and we have a bleeding of the gums before other symptoms of scurvy are manifest. A prolongation or recurrence of this stage of scurvey may be a more frequent factor in the etiology of dental periclasia than is generally conceded.

Dr. Eugene Talbot, in his work on ''Interstitial Gingivitis'' (another name for dental periclasia) gives full credit to the assimilation of food and to metabolism. His work if followed to a logical conclusion will not be far off from the facts deduced from the later study of conditions resulting from a scorbutic diet. But it was left to Dr. Black to prove by his experiments that the amount of food ingested by the individual was responsible for the amount and kind of salivary calculus deposited on the teeth of the individual. By repeated experiments he has shown that if a person takes and can digest so much food that the quantity of globulin and caglobulin manufactured is in excess of the amount the tissue can immediately use or store, these excessive nutritive materials will appeal in the fluid secretions of the body, consequently the saliva will be overloaded with them and as a result we have a deposit of salivory calculus lodging on the teeth. The question of vitamines and the balance of the lime salt content of the food undoubtedly will have some influence in this connection, but experiments along this line are not sufficiently conclusive as yet to make a definite statement.

The study of the influence which the endocrine glands exert over dental periclasia is just in its infancy, but apparently the action of these glands is influenced greatly by the constituents of the food. As an instance, the effect of vegetables containing iodine on the Thyroid gland. No doubt the para thyroid and other ductless glands are similarly effected by various food ingredients and we now treat some phases of periodontoclasia with these facts in view.

A year or so ago the members of the Academy of Periodontology received questionnaires which I sent them, also a request that they fill them out and return them to me. Some have complied, a few have not. These questionnaires I also sent to a number of dentists who are not members of the Academy but who might be interested. In all I have had returned about five hundred. Many interesting facts are disclosed by the answers given. The information, however, is more negative than positive. In other words, it tells us that certain food habits which some enthusiasts claim are the cause of dental and periodontal trouble cannot be relied on to prove these theories. The diet ordinarily used on this continent by the adult seems to be adequate for nutrition. The answers, however, show that there is a possibility of injury to the periodontal tissues and probably to the dental tissues of the adults, as the following shows:

Summary of Returns

A good proportion of raw vegetables and fruit, milk and vegetables and raw fruits.

26% have healthy periodontal tissues and no pockets.
74% have pockets or unhealthy periodontal tissues.
45% have numerous cavities or fillings.
55% have very few cavities or fillings.

A good proportion of raw vegetables and raw fruit and lack of carbohydrates.

24% have healthy periodontal tissues and no pockets.
76% have pockets or unhealthy periodontal tissues.
42% have numerous cavities or fillings.
58% have few cavities or fillings.

A good proportion of carbohydrates, raw fruits and vegetables.

36% have healthy periodontal tissues and no pockets.
64% have pockets or unhealthy periodontal tissues.
52% have numerous cavities or fillings.
48% have few cavities or fillings.

A good proportion of carbohydrates with milk but no raw vegetables or fruit.

37% have healthy periodontal tissues and no pockets.
62% have pockets or unhealthy periodontal tissues.
56% have numerous cavities or fillings.
44% have few cavities or fillings.

A good proporion of raw vegetables and fruit, milk and milk, but lack of carbohydrates.

26% have healthy periodontal tissues and no pockets.
73% have pockets with unhealthy periodontal tissues.
36% have numerous cavities of fillings.
64% have few cavities or fillings.

A good proportion of raw vegetables and fruit, milk and carbohydrates.

35% have healthy periodontal tissues and no pockets.
65% have pockets with unhealthy periodontal tissues.
58% have numerous cavities or fillings.
42% have few cavities or fillings.

As far as these returns are concerned we must remember that the dentists were asked to send reports of the first cases coming into their office after receiving the questionnaire. Therefore the majority of these are not selected cases and would represent the usual run of patients, in other words, the average individual and the average diet; which on the whole is probably fairly well balanced, but a few cases were reported which were exceptional and which I will relate as they bear on certain phases of the case.

One outstanding fact seemed to be evident throughout—the almost universal connection of worry with dental periclasia. Of all reports recorded there were less than two per cent. who were reported as not worrying, who had periodontal destruction in any advanced degree. Furthermore, those comprising the two per cent. follow avocations which would ordinarily cause a nervous strain, as for instance school teaching and law. One dentist reported that two patients of his had stopped the habit of worrying after he had treated the cases successfully, another reported the same thing about one of his cases. This would lead one to suspect the nerves as having some connection with dental periclasia.

One of the most interesting reports came from Dr. Fleming, who says a family living in his neighborhood acquired at the same time two dogs of the same age, one a mongrel, the other a pet house dog. The mongrel was put out of the house to live and fed the same as that sort of dog usually is, being allowed to forage part for himself. The other, the house dog, was tenderly cared for and fed the same thoroughly cooked food as that which was served the family. The mongrel kept his teeth to old age, in good condition. The house dog lost practically all of his teeth, because they became loose and the investing tissues were destroyed. Was this due to the breeding, the environment, the kind of food, the quantity of food, or what?

We all have many cases in our own practices which tell a lesson, but we fail sometimes to get all out of it we might. I will close this by relating one which I had to deal with. A young man came to me whose gingival tissues surrounding the upper anterior teeth, from cuspid to cuspid, were enlarged to twice their normal size, extending over the teeth to near the incisal edge, composed apparently of fairly dense fibrous tissues of a very dark color. There was a scant exudation from the gingival crevices which were of course unusually deep. This exudation ceased, however, when the gingival crevices were thoroughly cleaned out. There was scarcely any bleeding even under pressure or manipulation or instrumentation. The color which I spoke of was very dark blue in some places almost black, as this picture which I am showing you will bear out. This picture, by the way, was made by Dr. Milne from the case while the patient sat in the chair, and is a good representation of the case. This patient was a fruit grower and fruit salesman, and practically lived on apples, eating as many as two dozen large ones at a time, without taking any other kind of food. By changing his diet and by local treatment we were able to reduce the size of his anterior ula to nearly normal and to induce a better color. Was this due to endocrine disturbance, or to fruit acid effecting the lime salts of the blood, or some other cause?

This report, which is really one of progress, is, I know, very disappointing inasmuch as there is so little of a conclusive nature in it, but in conjunction with other work of this kind it may be of some use. I sincerely hope it will, or rather I sincerely hope some one will take up this work and do what up to the present, I have failed to accomplish.

An Elusive Dental Needle

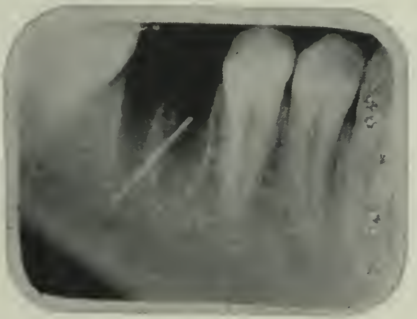
G. V. Morton, D.D.S., Hamilton, Ont.

I had a very interesting experience in locating a broken hypodermic needle, imbedded in the soft tissue of a boy about 14 years of age.

An injection for infiltration of the lower right molar had been made. A needle about five eights of an inch long and with a soldered hub had been used.

The point of insertion of the needle was about one eighth of an inch below the gingival and at the disto-lingual angle of the second bicuspid. The needle was pushed downward and backward until all but the hub was imbedded in the tissue. It was apparently at this point that the needle became detached from the hub.

The operator made an unsuccessful attempt to find the needle. (I do not know whether before or after he extracted the tooth). An X-ray was then taken and showed the needle apparently lying obliquely with the point of the needle a little below the bottom of the distal socket of the extracted first molar and the other end just below the alveolar border and in the middle of the mesial socket.



I saw the case 24 hours after the needle was broken off. It looked simple and I made a vertical incision between the sockets expecting to cross the needle, but did not feel it, and on laying back the tissues I could not see it. Then another incision was made distally to the first one with no better result.

I found it very difficult to get a view of the field of operation owing to the movement of the tongue, a copious flow of saliva and slight hemorrhage. On account of the difficulties mentioned and the fact that the patient was frequently distressed with nauseating symptoms, a momentary view was all that was possible and I was unable to locate the needle by palpitation.

Finally an incision was made along the full length of the second bicuspid, and it was at the bottom of this incision, or in the region of the apex of the bicuspid that the hub end of the needle was finally located. So much time was consumed in searching for the needle, and I was so anxious to get it quickly out that I did not pay much attention to the direction it was pointing. I thought however that it came straight out parallel with the long axis of the bicuspid.

From the time the patient presented himself to the completion of the operation consumed one hour and a half, which seems a ridiculously long time considering that I had an X-ray picture showing the needle quite plainly. My conclusion is that, even allowing for all possible movement of the needle, the X-ray did not accurately show its position.

Cigarettes and Vincent's Gingivitis

H. B. Ness, D.D.S., Edmonton, Alta.

That cigarette smoking has a detrimental effect and is a definite inpediment in the treatment of Vincent's gingivitis, or "trench mouth," is quite evident from the following experience:

Mr. J., age 27, reported at my office September 4th, 1922, complaining of symptoms typical of Vincent's gingivitis. Treatments were given every day, using Fowler's solution and also copper sulphate. This treatment proved beneficial and in two weeks the infection apparently cleared up, but reoccured in less than a week. (Wassermann test negative).

During October, November and December treatments were given, using the same solutions as before and in addition also trichloracetic acid. Occasionally the symptoms disappeared, but microscopic examinations showed "spirochaetes and fusiform bacilli present."

During January and February chromic acid was also tried, and diarsenol and petrolatum ointment was prescribed. Even the powerful mysteries of Mercitan failed to drive the evil spirit away.

Before referring the patient to Coué or a chiropractor I made a desperate suggestion, with an *ought to* instead of an *auto* in it. "Now, you ought to quit smoking for a week," said I. By this time the patient had become quite accustomed to all sorts of hardships and disagreeable ordeals and he also gave in on this point, just for the sake of experimenting. The result was almost a miracle, and within a week treatments were discontinued. Two months have now passed without the slightest trace of recurrence.

If this report is not of any value to the dental profession it may be used by social reformers as an argument against cigarette smoking.

DENTAL SOCIETIES

Ontario Educational Association

Reported by Harold K. Richardson, D.D.S., Toronto.

The most successful Convention of the Dental Section of the above Association was held this year. The papers which were read had such a direct bearing on all School Dental Clinic work that all who attended were well rewarded for the time spent.

The entire Toronto School Dental Staff were present and in addition we were fortunate enough to have the following from outside cities,— Dr. Green, Peterboro; Dr. Wilson, Belleville; Drs. Fuller & Snelgrove, London; Dr. Manning, Hamilton: Drs. Beihn & Furlong, Windsor. These men came as a response to an invitation extended by Dr. Grant, Chairman of Dental Section, and are in charge of School Dentistry in the various cities which they represent.

Enthusiasm in the proceedings was maintained by the formation of a School Dental Association. This was at the request of those engaged in School Dental Work outside the City. By keeping in close touch with clinical results from other centres we expect to grow in strength and unity.

Dr. E. A. Grant was elected Chairman and the Committee appointed were Drs. Pilkey, Fuller, Manning and Furlong.

It is proposed to meet again at the O.D.A. Convention in May, when we hope we shall add several new members to our newly formed Association. We are endeavouring to make School Dental Service in the various Provincial centres the best obtainable anywhere. Regret was expressed at the Convention that the Government had not yet appointed a School Dental Officer for which the need was felt greatly. Dr. Phair, School Medical Officer offered to have the Government print any Dental Chart Forms desired by municipalities at cost price if forms were supplied him. Dr. E. A. Grant read a very interesting paper which was well received and his report is published in this issue.

Dr. J. G. Pilkey presented a very interesting paper on Dental Prophylaxis and laid great stress on the fact that 75% defects occur on occlusal surfaces of teeth.

Dr. H. B. Walker gave a short talk on Preventive Dentistry.

Dr. A. E. Webster's paper on Operative Procedure was the feature and appears in this issue.

The reports from various centres are also published herewith.

The Academy of Dentistry

The Council of the Academy of Dentistry, Toronto, recommends the following changes and additions to the Constitution:

1. That two councillors be elected each year for a period of two years.
2. That the councillors elected with the highest votes this year be elected for two years.
3. That the newly elected Council shall take office on the first of June succeeding the election.
4. That at its first meeting the Council shall appoint the following standing committees of three members each:
    (a) House.
    (b) Program.
    (c) Publicity.
5. Any vacancy occuring in the list of offices shall be filled at once by the council.
6. Any physician or non-resident dentist may attend any meeting of the Academy or of a section, as a

guest of a Fellow. In other cases the permission of the President must be obtained except as provided in next section.

7. Any dental laboratory man may attend the meeting of a section only on the invitation of the section and shall be responsible for the fee of the section but he shall not be a Fellow of the Academy.
8. The annual fee of the Academy shall be $5.00 which shall be paid to the Treasurer before joining any section.
9. The annual fee for each section shall be $10.00 payable to the Treasurer.
10. The Treasurer shall pay all expenses of the Sections on the order of the Chairman and Secretary of the section, up to, but not exceeding the amount paid by that section; any funds remaining to the credit of the section shall be disposed of as directed by the section.
11. Not later than the second meeting of the section, the Section fee shall be paid, after which no one shall be admitted without paying the fee at the same time.
12. No one shall be accepted as a member of a section (except as provided for in section 7) without presenting his ticket of membership in the Academy for the session.

Notice of motion by Dr. A. Day: "That President Elect be changed to Vice-President."—Lost.

Railroad Rates to Cleveland Meeting

All railroads in the United States and Canada will sell round-trip tickets at one and one-half fare, on the "Identification Certificate Plan," instead of the "Certificate Plan" used heretofore.

You cannot obtain the rate without one of these certificates. One certificate is sufficient for a member and dependent members of their families. These identifications will be ready for distribution August 1st. However, application should be filed at once.

One of these identification certificates will be mailed to any member of the Canadian Dental Association on application to D. C. Bacon, Chairman of the Transportation Committee of the American Dental Association, 31 N. State Street, Chicago, Ill.

"Died From Natural Causes"

Under the above caption there appeared in the April issue of the Dominion Dental Journal a letter from the pen of Dr. A. W. Thornton based upon a report of a case of death following the administration of an anaesthetic and the extraction of fourteen teeth. Dr. W. J. Laker who gave evidence at the inquest takes exception to Dr. Thornton's letter, particularly the last paragraph thereof. Dr. Laker states that he is quite certain that had Dr. Thornton had the evidence of the inquest before him he would hardly have written as he did. Had Dr. Thornton's letter been carefully read it would not have appeared in the form it did, and the Dominion Dental Journal wishes to express to Dr. Laker its regrets for the publication of a paragraph which he thinks cast a reflection upon him. Unfortunately too, Dr. Laker's discussion was misplaced in the Journal, which made it appear that it was Dr. Thornton's letter he was discussing, while as a matter of fact it was of the report appearing in the March issue.

We publish below a reply from Dr. Laker to Dr. Thornton which makes it clear that Dr. Laker does not think that the report was correct. To settle this point for all concerned, we publish in full the official stenographer's report of his evidence given at the inquest, and if an incorrect report in the March issue was given, the Dominion Dental Journal offers its regrets to Dr. Laker.

Dr. Laker's Evidence

AT THE MORGUE OF THE CITY OF TORONTO

Re John Bavington Inquest Before Coroner Clendennan

E. J. Murphy, Representing The Crown, Wed., Feb. 21, 1923

Dr. Walter Laker, 512 Dovercourt Road, sworn, examined.

BY MR. MURPHY:

Q. You are an exodontist, you make a specialty of this work? A. Yes.

Q. How long have you made a specialty of this work? A. Particularly last six years, but for more or less, say, about 8 years before that.

Q. You used to be at Dundas and Dovercourt, did you not? A. Yes.

Q. You did not make a specialty of extractions at that time? A. No; that is why, partly, I moved to Dovercourt.

Q. How many extractions do you average a day now? A. That depends; most of our work is physicians' work and we do not get very much from dentists. We are satisfied to work for about four for a day.

Q. What instructions do you receive from the physicians? A. All the history that we can get, all we can get. If we do not get it from the physician my nurse while I am preparing for work—I got a hospital graduate nurse—and she gets what she can and if there is anything that is at all doubtful she tells me and we write it down; take care of that part of it. We take for pulse and attend every patient more or less medically before we start. We are particular in that line.

Q. What advantage is that to you, to have the full medical history? A. A man should not work without having it. Q. What advantage is it? A. A man should not work without it. Q. What advantage is it? A. So that with accidents or anything along that line, so are prepared to guard against it and we know practically then—

Q. What accident, for instance? A. Accidents such as shock or certain amount of hemorrhage.

Q. You would not attempt to extract 14 or 15? A. No sir, absolutely, without a question, no sir. We could not control a hemorrhage. If this man had had from 14 stumps or more than that because some of them would be molar teeth and we would open up too much infection. We would take this man probably with the history we would be likely to get from this man's physician and we might extract just one. We lose many patients because we will stand on that rule.

Q. What is the most teeth you consider should be removed at one time? A. That is little hard to tell. For instance, say if you had mouth that could be worked on and for instance you were working in conjunction with your dentist that was going to put in the work and you had teeth that was healthy, you could eliminate practically the fact of infection, of opening up infection from that condition. That part there would be eliminated if there was bad condition of hemorrhage. You would still have to bear in mind that we have taken as low as one, but very, very seldom more than about 7, very, very seldom. I do not suppose once in a year more than 7.

Q. What would be the condition of the patient that you would extract 7 teeth from at one time? A. Might be a condition where they would have some heart trouble, probably a weak pulse; might have a condition of anemia, might have heart condition or kidney trouble; might have nearly anything along that line. They have had to go to their physician, they are ill enough to go to physician, and where they come to us with teeth trouble go carefully, what you do do it right and clean up and you can stop pretty near all the infection.

Q. What would you say as to the shock sustained to the nervous system in extracting teeth? A. Nearly always, if there is only one, there is more or less shock takes place on the different nerves. There is more or less shock with any one, but pyorrhea cases, sir, we consider the most dangerous case of extraction. We have because it is jaw infection and not the teeth infection, and here is a man I have quoted, he is authority on the mouth, says—I have it here in front of me—that he would extract about two at a sitting and wait eight days and go on.

Q. Supposing that a man had pyrrohea and has been suffering from six months, a year from the day of extraction, by extracting his teeth at one time will that help his condition materially? A. No sir.

Q. Why? A. Because you open up more than his system will carry. If a man had a blood count, which I suppose would be taken in the hospital, if his white blood is say over 6500 you would know his system was good, but if it was under 6500 you would know he was not in good shape and go more carefully.

Q. All these things should be taken into consideration? A. Yes sir, and we try to get it in every case.

Q. Do you think that a man extracting 14 or 15 teeth, as has been brought out in this particular case in question, that he could properly cleanse the wound? A. Well, I could not hear all this, sir, but I would say, sir, practically no in majority of cases—I could not hear all the evidence.

Q. Can you pull 14 teeth and properly cleanse the wounds in four minutes? A. Yes, I think you can but we would not do it.

Q. Would there be any pain in the extraction of 14 or 15 teeth? A. There might possibly be, depends pretty near how hard they were set in his jaw whether there was much pain.

Q. If they were loose as has been mentioned here before? A. Well, of course, all pyrrohea teeth are more or less loose.

Q. Would there not be some pain? A. Oh, would be, I guess, some, cannot have any one hardly without some pain to it.

Q. That pain would be strain on the nervous system, would it not? A. I would think so. Of course a man taking a general anaesthetic he might be more or less unconscious, he might be practically more or less in that anaesthetic long enough for that pain to subside.

Q. Do you think it is possible to pull 14 or 15 teeth without causing some shock? A. Absolutely no, sir, it is not possible to pull one, I do not think. Q. Without causing some shock? A. Absolutely, I think no. Under an anaesthetic the work could be done almost painlessly but there is always a certain amount of shock to it, loss of blood I would consider a shock. At least, with pyrrohea cases; there is quite an abnormal condition. I think there is no question at all to my mind, I would not attempt it and will not attempt it. We will lose a patient first. The authorities that we work on are as I have named.

Q. Are those standard authorities? A. I think they are—Hatzell, Thoma, Mayo Clinic—I think they are pretty near capable of taking care of infectious disease and knowing what is the best thing to pull and they will not extract many teeth at a sitting. You see, the idea is to relieve the system a little, that works both ways. The time usual for us to take out 20 teeth is from three to five sittings. Most of our work is physicians' work.

Letter From Dr. Laker

512 Dovercourt Rd. April 14th, 1923

The Editor of the Dominion Dental Journal, Toronto:

Dear Sir.—May I ask for a short space in the journal that I may answer a few questions and make a few explanations which I feel it necessary to answer as the wording of Dr. Thornton's article has caused me, even at this early date, financial loss and embarrassment. Many who read it and then having read my article headed "Discussion" which followed Dr. Thornton's article, have surmised that I was discussing the article written by Dr. Thornton, which was not the case. I was discussing the article written by Dr. Madill in the March issue of your appreciated journal. I did not know of Dr. Thornton's article until I read it in the journal. Had I known it was to be in, and if I had seen it I would not have sent in mine, but immediately upon the issue of Dr. Thornton's article, have entered an action against Dr. Thornton. One thing this would have accomplished, it would have enabled him to prove where I was so far wrong in my judgment as to have it pronounced ill founded and in bad taste, etc.; also I might have been reimbursed for any financial loss sustained through his article. It seems too bad that a great deal of controversy and discussion has been caused unnecessarily by the original misquotation of the evidence given by me and as written by Dr. Madill for your journal in the March issue. The specific statements will be taken up definitely.

Dr. Thornton has based most of his article on statements and interpretations which were not made nor intended to be made by me at the inquest recently held. These statements, unfortunately, having been made by Dr. Madill in the journal, as if made by me and purporting to be my evidence. The statement that I never remove more than five or six teeth at one sitting, and that I considered it bad practice, is entirely wrong. I did not, nor do I now, make such an assertion, unless it be in reference to people who are in ill health. This class of patient being the only one which were under discussion at the inquest. I do, however, emphatically say that in cases of severe illness, that I consider it "bad practice" in the interest of the patient to extract many teeth at one sitting, though it may be the best financially for the operator The procedure now followed by close observers in this line of work and by those who are seriously working for the benefit of the patient is usually followed out in series of operations, some few days' rest being allowed between the operations. During these intervening days, the patient is watched for reaction, etc., to the best of our ability. We always give a patient an appointment slip, requesting them to return a few times, that we might watch the patient and also attend to the wound. Of this we keep a carbon copy duplicate. Again, Dr. Thornton has based part of his article on a statement made by Dr. Madill, that I said I always made a thorough physical examination of each patient. This is again wrong. What I did say was, and what I meant was, that we endeavor to get, or that we do get, this information from the patient, from the physician or by our own knowledge. To emphasize this, see article in Dominion Journal April, 1921, where I make the same assertion. Now knowing the serious condition of the infection, we are to remove, we base our amount of work accordingly. By watching the patient for the next few days, we are able to form an idea as to the amount of service to render at the next sitting.

The questions are asked of me by Dr. Thornton, do we always take the blood pressure, blood count, etc. See Article April, 1921. As Dr. Thornton, Dean of McGill Dental College, asks me where this knowledge may be obtained, allow me to say that if his question was asked without malice of intended insult, I certainly would have supposed that he would have known where to get this information. I obtained my knowledge by private tuition, paid for by myself, by the use of ''night oil'' and hard work, having at one time a room in my house set apart for this work alone. I will, therefore, advise Dr. Thornton and the others of whom he speaks, as wishing to take such a course to get the following books which I have found very helpful—

Essentials of Laboratory Diagnosis—Fraught.

Medical Laboratory Methods—French.

Practical Bacteriology and Blood work and Parasithology —Stitt.

General Pathological Anatomy—Ziegler.

My microscope is a 3 power Spencer. My blood counting square Ziess Jena. For Haemoglobin scale is a Pallquist book.

Another good book—Oral Abscesses—Dr. Kurt Thoma.

Another good book—Practice of Medicine—Osler.
and others.

These books have been, and are, some of those used in my ''post graduate'' work, as the worthy Dr. Thornton wishes to call any study a man may do after graduation, I suppose. If Dr. Thornton wishes definite answer to the question as to whether I would consider it mal-practice to remove many teeth for a patient as ill as the deceased patient was known to be, I will say again, as I stated in my evidence, that I would sooner have a patient leave my office than I would stoop to do what I considered wrong in the best interest of the patient, and I have allowed many to leave under such conditions. As to the question of Chloroform and Ether, I might say that I personally consider these as almost obsolete for ordinary dental operations. I think this same opinion is borne out by a great many operators. I always put this up to the physician, but if the service can be rendered by any other method I do not hesitate to advise against the use of these dangerous anesthetics.

I am asked, do we advise our patients before and after operations. Yes, and furthermore we do not allow a patient to leave our office without a rest after any operation, no matter how small. This is a positive rule.

Let me again state that some of my authorities are doctors—Boyd Gardiner; Kurt Thoma; F. F. Molt; Thos Hartzell, D.M.D., M.D.; Irons, M.D. (note physician), Chicago, Ill.; Davis, M.D.; S. A. Twinsh, M.D., F.A.C.S.; and also my own observations of the good results of this principle, also the principles as laid down and practised by these men with absolute success.

Again I would like to know, does Dr. Thornton know that personal letters to me, and books, journals and articles written by dentists and physicians on the subject of ''too much extraction'' etc., were produced by me at the inquest. I think Dr. Webster, the other witness was asked if the men I quote were of the calibre I had stated them to be, and to the best of my memory he said they were. Yet, Dr. Thornton must think otherwise.

It might have been wiser had Dr. Thornton found out whether he was given the evidence correctly or not before making such absurd statements as he has made. A fair critic would, I think, have supposed or realized that perhaps at an inquest it might have been probable that the questions asked were in reference to people who were ill, and not those who were well. In this instance, such was the case only ill people were spoken of. I have the permission to use the names of both the Crown Attorney and the Coroner in charge of the inquest to say for them that the above assertion is correct.

Further I was sworn to tell the truth and the whole truth, and this I tried to do. Must I be pilloried because I didn't evade and violate my oath, but tried to be conscientious and fair.

I think this controversy might have been avoided if Dr. Madill had had the Court evidence at hand when he wrote his article as in the March issue. I also feel that the last paragraph of Dr. Thornton's article was entirely unfair. Then surely in courtesy and in justice to me and to those whose principles are at stake, an outspoken retraction of his last paragraph is in order.

Yours Truly,
W. J. Laker, D.D.S., M.D.S.

Editorial

EDITOR:
A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.
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Vol. XXXV TORONTO, MAY, 1923 No. 5

Is Dentistry a Part of Medicine?

Again and again this subject is discussed in dental magazines and in dental societies. Medical societies rarely, if ever, discuss the matter. Most physicians think little about it. In a recent issue of the Minneapolis District Dental Journal appears a compilation by Dr. Owre covering the views of those who believe dentistry to be a part of medicine. If medicine is correctly defined by the dictionaries as being the "art or science of healing diseases as well as preventing them," then the practice of dentistry is truly the practice of medicine. Because all its efforts are for the purpose included within the definition. Dentistry does not seem to be a specialty of medicine because it can be and is practised with a fair degree of success without the broad education required in general medicine. Other specialties pre-suppose a knowledge of general medicine which dentistry does not. It is true the more widely the dentist is educated the better service he will render. The great majority of the leading members of the dental profession believe dentistry is a part of medicine and live up to the traditions of the noble parent. There are those, however, who think dentistry is a mechanical art and can see no need for the study of the sciences other than those of engineering. The public judges the standing of dentists by comparison with physicians who study biology, chemistry, anatomy and physiology and not by engineers who study physics, mathematics and electricity. Dentists must have a knowledge of the fundamentals of both callings and are at the disadvantage of being unable to excel in either because they must, in addition, know mechanics and the fine arts.

It is very doubtful if dentistry should hang its hat on the medical peg alone. The fact remains that dentistry is an independent profession and has risen to its present position as a legal entity. It may have been all wrong but it seems to progress best where it is most free. Legally dentistry is getting along all right on this continent, in practice it must specialize to the extent of giving more attention to diagnosis and the carrying out of treatment by less expensive assistants.

Insulin

Insulin cannot as yet be marketed by the usual methods because its use in the treatment of diabetes involves considerable risk from overdosage. It is certain that serious accidents would follow its use in general practice unless methods for handling these risks are properly understood. Since no two cases of diabetes will require the same amount of insulin it is necessary to find out for each case what this dose should be. This must be done by using graded doses along with proper control of the diet for each patient. The correct procedure for finding this dose is being worked out at present and will be published at an early date. Meanwhile the University of Toronto which holds patents for the protection of the manufacture of insulin has instructed the Eli Lilly Co., which is collaborating with it in the manufacture of Insulin not to distribute the product unless to physicians who have specialized in the treatment of diabetes or have taken special courses of instruction in the use of insulin.

Dr. F. Rous Mallory presents his compliments and begs to announce his change of address from 2 Bloor Street, East, Toronto, Can., to 30A. Wimpole St., W. 1., London, England.

Editorial Notes

Discontent is an infirmity of will.

Real merit is not in the success but in the endeavor.

Behavior is a mirror in which everyone shows his image.

Dr. Emile Keiffer, Montreal, was fined $500 for selling morphine.

An education is the residue of what was once learned and now is forgotten.

Not how much talent have I, but how much will to use the talent I have is the main question.

The commencement exercises of the R.C.D.S. will be held on May 25th, and convocation June 8th.

Drs. W. E. Cummer and W. Seccombe were among the essayists at the recent Massachusetts meeting.

Dr. W. A. McLaren says he defies the college to stop him from advertising his services for sale to the public.

The law of nature is: Do the thing and you shall have the power; but they who do not the thing have not the power.

It is proposed that the City of Hamilton Board of Health assist in establishing portable dental clinics in Barton township.

The Public Health Committee of Vancouver has recommended the establishment of a dental infirmary. It is to be a free clinic.

Dr. A. W. Thornton recently addressed the Life Underwriters' Association, Montreal, on the teeth as a cause of a poor or good risk, according to their condition.

Dr. Arthur D. Black and Dr. Hewston Methuen of North Western University, Chicago, will attend the Alberta Dental Association in Calgary in the latter part of July.

Peterboro, Ont. Dental Society has elected officers as follows: President—C. H. Fulton, Sect.-Treas.—J. Graham. Dr. Green, school dentist, addressed the meeting.

A unique feature of the propaganda for the Cleveland meeting in September, 1923, is a short obituary of some of the noted dentists of that city. It shows the important place dentists have taken in the affairs of state and profession.

If you wish to be miserable think about yourself, about what you want, what you like, what respect people ought to pay to you; then to you, nothing will be pure. You will spoil everything you touch; you will make misery for yourself out of everything which God sends you; you will be as wretched as you choose.—*C. Kingsley.*

The graduating class of the Royal College of Dental surgeons held its final banquet at the King Edward Hotel. Among the speakers were Sir Robert Falconer, F. A. Clarkson, W. E. Willmott, and A. D. A. Mason. Mr. McDougall, the president of the year, acted as toastmaster. The proceedings closed with the university and college yells.

The closing meeting of the Academy of Dentistry, Toronto, was held in Osler Hall. Addresses were given by Drs. R. M. Box, W. E. Trefford and C. E. Sutton, which covered some of the more recent investigations of Dr. Harold K. Box. During the first hour of the meeting, reports were received from the retiring officers, which indicated marked progress and splendid work of the sections. The membership is 189.

The Officers of the Academy of Dentistry, Toronto, are:

President—J. A. Bothwell.
President elect—Arthur Day.
Secretary—A. M. Hord.
Treasurer—W. E. Willmott.
Executive—G. V. Fisk, S. W. Woolatt, W. G. L. Spaulding, C. B. Bell.

TRANS-ILLUMINATION

There is no sure method of determining the vitality or non-vitality of the dental pulp in every case but a fair assurance can be arrived at by a combination of several methods. Among the most useful because of its simplicity is trans-illumination. There are several simple devices for this purpose among them the Cameron lamp which has some special features. The dentist who expects any device to be sure every time will be deceived.

FOR SALE—American X-Ray Machine in perfect order; extra tube; for diagnostic and root canal work; none better. Box 6, Dominion Dental Journal, 73 Richmond St., W., Toronto.

FOR SALE—Complete Dental Equipment in old established office. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

Dominion Dental Journal

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ORIGINAL COMMUNICATIONS

The Ancient Grudge Against Children's Teeth

A. E. Webster, D.D.S., M.D.S., M.D.

Address Delivered Before the Waterloo Dental Society

"They will be lost in a few years so why fill them."

"Children's teeth are not sensitive so extract them without an anaesthetic."

"They are only baby teeth anyway so don't put much expense on them."

"Children's teeth are a bother erupting and a bother till they are lost."

"Gumboils don't hurt children."

"Fillings cannot be made to stay in children's teeth."

"The cavities are too small to fill."

These and many other subterfuges are given as excuses for neglecting children. All of the above expressions and many others of equal significance have had their origin among dentists at one time or another. Few dentists wish to work for children, mostly because it takes a special kind of training that they never had. A training in psychology. Time was when we complained to our adult patients that they did not consult us early enough to save the teeth. Later we complained that the neglect of the deciduous teeth was the cause of their present condition. Now the trouble is not so much the deciduous teeth as the pregnant mother and some even go as far back as the third and fourth generation to explain the primary cause of defective adult teeth.

Dr. Percy Howe, of the Forsyth Dental Infirmary, Boston, has thirty-six monkeys under observation. He has been able to prevent conception, cause deformities of offspring, defects of mentality, irregularities and calcific defects of the teeth by feeding monkeys on some of the regularly prescribed diets of humans. Not only this but he has caused dental caries within a period of six months. A reasonable interpretation of these findings would be that many women cannot become pregnant when living upon some forms of present diet and that those who do are liable to have offspring more or less defective in osseous structure including the teeth. Pickerell pointed out that the teeth of highly civilized races had more defects than those of native races.

It has been thought for years that defects in the enamel structure of the teeth predisposed to dental caries. If this view be correct then one of the primary means of preventing caries is to prevent defects of structure by giving the mothers and children a balanced diet at the time the teeth are calcifying. It is held by some persons that no matter how defective the tooth issues may be, dental caries can be prevented by the choice of a correct diet. In support of this argument fissures are painted to which have remained in some mouths for years and years without beginning caries. One is often struck with the frequency of enamel defects at certain points on the crowns of first molars, cuspids and incisors corresponding to the period of birth or later when calcification of the enamel is going on at these points. No one doubts the fact but these defects are a potential cause of beginning caries.

The first step then in the management of children's teeth is to prevent defects in structures and irregularities. This can be most effectively done by directing the family physician to give up instructing expectant mothers to take no food containing calcium salts or substance which will cause building of bony tissues. Next the dentist should assist the physician as far as possible in his stand against artificial foods for babies and support every effort to have children feed on such foods as will develop a normal human being. Nature not only intended that humans should get foods containing such elements as the body required to build and maintain it but also a sufficient bulk of inert substances to give the bowel something to contract upon so that the waste material may be expelled from the body. Man at one time ate bulky foods and his intestinal tract is so adjusted to it that he must still take bulk or have a choking of the intestines. Then if we must eat beef extracts, extracts of fruits, jellies and sugar, cornstarch and white flour, then let us throw in a few husks, as bran, celery, etc. Dr. Howe feeds his monkeys blotting paper or toilet paper to supply bulk.

Such schemes of supplying bulk are artificial and have reference to keeping the bowels in order only by quantity without giving thought to the part played in digestion by mastication and the secretions of the mouth. Such bulky substances as cellulose, in the form of bran or paper do not give the normal exercise to the teeth and gums as chewing sugar cane, celery, or wheat. Taking orange juice, lemon juice or fruit extracts may supply the essential elements but they do not supply the exercise and as well the secretions stimulated by mastication. Besides there is the mechanical cleansing of the surfaces of the teeth from chewing an apple or a carrot that cannot be had by eating apple jelly or carrot juice. Persons even though well supplied with the correct constituents of a balanced diet will have an uncleaned mouth, inflamed gums and likely dental caries unless there is the mechanical cleansing of the surfaces of the teeth and exercise of the gums supplied in some form. It is just here prophylaxis has its value in supplying a means of cleansing and give exercise not provided in the ordinary mastication of pasty and slushy foods. Then the second great factor in the care of children's teeth is to provide a character of diet which will give the mouth and teeth exercise in mastication and incidentally supply the normal mouth secretions required in digestion. If such food is not supplied then the dentist may give the mechanical part by prophylaxis and massage.

The next step in preventing diseases of children's teeth is to make a thorough examination, take a full history, make a diagnosis for now and a prognosis as well. Usually when a child visits a dentist for the first time he comes with one of his parents who is known and which may make the taking of a family history unnecessary. The history should include illnesses, general health, progress at school, activities in games. Ability to bite and chew things, what he eats, how he sleeps, how he breathes, can he run races, has he any pains or aches. If this is adroitly gone through, the child is on the dentist's side when it's over.

Observation ought to reveal to the dentist the physical and anatomical make up of the lad and from the family history, personal history and the present conversation he should be able to judge how they are going to get along together. This is not alone an examination to determine whether to extract a tooth or not, but it is also to determine what the prospects are to carry this boy to old age with a good masticatory apparatus during his whole life. Perhaps the two chief factors which help to determine this point are the anatomical form of the mouth which includes the teeth and their arrangement and the physiological condition of the soft tissues. Decay is controllable and so is periodontal disease given good anatomical form and physiological processes. Having determined these two factors then a prognosis can be arrived at which will be a guide in treatment of this child from now on. If malocclusion or violent reactions to irritants are foreseen a successful treatment is more likely to follow. It is a dentist's business to do more than fill holes in teeth and extract them when they pain. Filling teeth or extracting them are only incidents in the process of maintaining the health and development of a child.

Necessity has divided children's dental practice into two distinct classes. Those who have the time, money and opportunity to get the best dental services and those who can get only as much services as they can afford to pay for or public clinics have dentists enough to supply. It often occurs that the service given in public clinics which is chiefly extracting is better than is given the careless wealthy classes where conservation is begun too late.

After a thorough examination of a child's mouth and teeth has been made and a prognosis arrived at one ought to present directions to a proper treatment of the case. What might be termed anatomical defects may be found. Among these will be hair lip perhaps complicated with cleft palate. Not infrequently a parent of a child having a hare-lip will consult the dentist for advice. The family physician has been consulted and has already given his opinion. Too often this opinion is that the child should be allowed to grow up until he is ten or twelve years of age before any surgical interference should be undertaken. This in the light of modern surgery carries the child past the time when his teeth will come in to proper occlusion and also the time when he may learn to speak properly. The dentist should be very cautious in giving expert opinion of the treatment of cleft palate and hare-lip because it is always wise to find out what information the parents have and what advice they have been given. If he should fear that the family physician has given wrong advice it is far better to give the advice before you know who the family physician is. The best practical advice for a dentist to give under such circumstances is to have the parents consult with the best known surgeon who makes a specialty of this particular kind of work and especially one who has been trained in dental surgery.

Malocclusion is one of those progressive deformities in children which may be observed in its very beginnings when the deciduous teeth are erupting. Parents should be warned of such deformities developing and every effort should be made to prevent its progress. The modern orthodontist believes in correcting irregularities at the earliest possible moment and preventing further developments of the deformity. The dental history of the parents may be of great assistance in determining whether the child is liable to develop a deformity in this direction or not. There may be an excessive number of teeth which will cause the permanent teeth when coming in to become quite irregular. This excessive number may occur between the upper central incisors in the region of the lower second bicuspids and occasionally in the main body of the maxilla. Such excess or supplementary teeth should be removed so that they may not interfere with the proper eruption of the permanent teeth. Careful watch must be kept all the while that all the permanent teeth may be coming into place properly. Unfortunately many patients are lacking upper lateral incisors, lower second bicuspids and third molars. Permanent teeth may be lacking also because of thi~~s~~e deciduous ~~of the~~ teeth having been removed or disturbed at the time of an early extraction of a deciduous tooth. If there should be any doubt in respect of the number of teeth that should come an X-ray picture should at once be made. Defects of the deciduous teeth are rare, occasionally they do come through with very little covering of enamel, these commonly decay badly, but the permanent teeth very frequently have defects especially the incisors and first molars and less frequently the cuspids. At first the parents and later the patients themselves are very much concerned about what should be done with such defective enamel as may be found on the incisors. These defects usually involve the most exposed portion of the tooth and unfortunately are often dark yellow in color, the corners of the teeth standing out prominently. Such defects are not only unsightly but are often the source of beginning dental caries. These should receive the most tentative kind of treatment because if any of the tooth tissue is cut away the whole end of the tooth may break off. The little holes and defects which reach to the dentine should be squeezed full of a silicate as nearly the color of the tooth as possible. As time goes on the pulp will recede and when the child becomes fourteen or fifteen years of age there may be an opportunity then of applying a porcelain facing. The first permanent molars should receive prompt attention grinding off the rough and irregular spiculae of enamel and removing any decay that may have appeared, painting with nitrate of silver and filling defects as far as possible with copper amalgam. Later if these defects are marked the whole end of the tooth may be restored with a cast gold inlay using pins to hold it in place. Prompt attention to such molar teeth is imperative because the defective character of the occlusal surface may cause an irregularity in the occlusion and a destruction of the dental pulp. Defective fissures in otherwise normally developed teeth occur in molars and bicuspids and sometimes in the lingual surfaces of upper incisors. Dr. Hyatt in a recent article read before the Philadelphia Dental Society, brought forward the idea of preventive dentistry recommending that all permanent and deciduous teeth having defective fissures should be filled as soon as the teeth erupted. This looks like a waste of time and an unnecessary torture to young patients. It may be true that eighty or ninety per cent. of all defects in children's teeth begin in pits and fissures, losing sight of the fact that many defective teeth or teeth having open fissures go on for scores of years without decay and that the modern idea is that the patient shall consult their dentist frequently thus giving an opportunity for observation of the beginning of dental caries. As a rule patients are asked to visit a dentist once or twice and sometimes three or four times a year, and since dental caries does not come on suddenly it leaves plenty of opportunity to fill such defective fissures when decay has begun. This is especially true in city clinics where the children can be examined frequently. If such defects need any treatment at all ten per cent. nitrate of silver carried into the fissure with a fine instrument or a piece of wood like an orange-wood stick whittled flat is most satisfactory. If any of the fissures in a given tooth have begun to decay it is a part of wisdom to fill any other fissures that may be found in that same mouth. If the surface of a tooth is dried out as well as possible and then treated with nitrate of silver and black or red oxide of copper squeezed into the fissure under heavy pressure of the finger which has already been moistened with an oil so as to keep the cement from sticking when withdrawn and held as long as the child will permit so that it may be kept dry. If actual decay has begun in the fissures then it is wise to cut them out as much as possible and fill the cavity with copper amalgam in the deciduous teeth. In the permanent teeth it may be wise to use an inlay or oxy phosphate of zinc. All proximal cavities in the anterior deciduous teeth are most likely best filled with silicate filling or oxy phosphate of zinc. The color of copper amalgam or red or black oxide of copper are objectionable to most patients. The preparation of cavities in the deciduous teeth is usually very difficult in quite young children but after some experience the child will allow fairly good preparations to be made. It must not be expected that all the care and pains taken with permanent teeth need always be taken with deciduous teeth. If the Pulp is protected and the proximal surfaces protected that the teeth may not drift and when the permanent teeth come in they may be guided to their proper position it is all that can be expected. It must be kept in mind that the pulps of deciduous teeth are larger than the pulps of similar sized permanent teeth, but exposures are very liable to take place in the projecting horns of the pulp. On the other hand pulps of deciduous teeth are not so sensitive as permanent ones and are not so liable to die and if they do die they are not so liable to give the same acute inflammatory process because the ends of the roots are not so deeply imbedded in the jaws. Hand instruments and spoon excavators are the great standbys. Fissure burs and invertecone burs may be sometimes carried through the occlusal of a molar with great satisfaction to make a step for the purpose of holding a proximal filling in place. Nitrate of silver, black and red oxide of copper, as well as copper amalgam should be the standbys in deciduous teeth, using the lighter coloured cements for the anterior ones.

A child presenting with many large proximal cavities and especially many cavities reaching deeply into the tooth tissue, should have all treated with nitrate of silver for those not close to the pulp and a mixture of thymol and oxy-sulphate of zinc or perhaps cotton dipped in carbolized resin or oxide of zinc, oil of cloves and nitrate of silver mixed together when the patient arrives for the next time. Such preparation makes the cavities less sensitive and more easily operated upon at the next sitting. Teeth with exposed pulps which will be lost within two or three years need very little treatment other than the application of oxide of zinc and oil of cloves followed by a cement filling. If absorption of the root has already begun it reduces the acuteness of any inflammatory process which might follow. Pulps exposed between three years or so after eruption and two years of being lost may be devitalized by application of a very small portion of arsenic left not more than twenty four hours in contact with the dentine near the pulp of the tooth. If the pulp should not be all dead then application of tri-creasol and formaldehyde may complete the distruction. It used to be taught that such root canals should be filled with as much care as those of permanent teeth and especially with a mechanical root canal filling. Experience has taught the profession that such procedures are not in the best interests of the patient. It is better by far to fill such root canals with an antiseptic root canal filling and if any pulp should be left in the canal use what is sometimes called, Mumifying Paste, that is a mixture of oxide of zinc, creasote, tannic acid and alcohol or perhaps glycerine. Such a mixture pumped down into the canal and covered with an oxychloride of zinc filling will give as good opportunity for permanency as any other treatment yet tried. It is not wise to leave the filling material in a root canal which will not be absorbed as the roots themselves are absorbed. Pressure anaesthesia may be used for desensitizing pulps for removal.

Deciduous teeth having dead and infected pulps should be opened up and the contents washed out with water and the root canal cleared as much as possible and treated with oil of cloves or creasote or campho-phenique for not more than two at the outside three treatments and then the canal filled with such a mixture of oxide of zinc, thymol, alum, tannic acid and creasote. The choice of crown filling depends upon the opportunities in the crown and liability of failure of the root canal operation. If such a tooth gives evidence of acute infection or chronic infection it will be well to remove it. Deciduous teeth having abscesses with sinusis may be washed out with water after opening up the pulp chamber and canal and Beck's Bismuth Paste squeezed into the pulp cavity and out through the canal and a filling inserted in the crown. This practice is very satisfactory in this particular variety of cases. Deciduous teeth should be extracted at the normal time to be lost if the permanent teeth are following.

Relief of Pain.

Pains in young patients are most commonly caused by infection and trauma.

Infection of the pulps is usually direct from the mouth through a cavity in the tooth. The peridontal membrane is infected from a dead pulp.

The pain of pulpitis comes on suddenly and is intermittent while the pain of peridontitis comes on more gradually and is persistent.

In pulpitis the peridontal membrane is not likely to be sore while in peridontitis the membrane is sore the tooth elongated and some swelling or soreness on palpation over the root.

Pressure is the cause of the pain in each case. This may be relieved by local anaesthesia depleting the part by counter irritation or blood letting or lowering the general blood tention.

Pain from Trauma.

Cold application at first, warm application later.

Put the parts at rest.

Counter irritation.

Tests for vital or non-vital pulps.

History of accidents or dental operations.

Color.

Response to heat or cold applied to the tooth.

Sensitive or non-sensitive dentine.

Faradic current.

Peridontal membrane slightly sensitive if pulp is dead.

Power of mastication is greater on vital teeth.

Extraction of 1st Permanent Molars.

If the deciduous teeth are in place and will hold the bite in normal separation and the second molars have not erupted and two lower first molars and one upper first molar must be extracted then remove all four, but if two uppers are to be extracted do not extract the lowers. If two molars on the same side must be extracted do not extract the teeth on the other side but if a molar on the lower left side must be lost and one on the upper right side extract all four. If the only teeth keeping the bite open are first molars retain them until the bicuspids or the second molars come into normal position, then determine whether to extract or not.

Pulpitis.

Remove as much decay as possible without pain. Apply cloves and phenol on cotton, if the pain is not relieved in fifteen or twenty minutes it may be necessary to open the pulp chamber where cocain may be applied.

Peridontitis.

Drainage, counter irritation, protect the tooth from occlusion by cement on the crowns of other teeth. Internal remedies,—asperin, etc., extraction and lavage.

Acute Fuso-Spirillary Gingivitis

C. B. Hallett, D.D.S.

I. Nomenclature:

In the latest terminology of peridontoclasia accepted by the leading periodontists, the term ''Acute Fuso-Spirillary Gingivitis'' is the name applied to the disease formerly called ''ulcerative stomatitis'' or ''Trench Mouth.''

Acute Fuso-Spirillary Gingivitis is an admirable appellation since it adequately describes the condition as will be shown. "Gingivitis'' may be defined as an inflammation of the gingivae. ''Acute'' - the disease is certainly an acute condition. ''Fuso-Spirillary'' indicates the organisms responsible. So, as the name so aptly implies, we may define Acute Fuso-Spirillary Gingivitis as an acute inflammation of the gingivae caused by the Fusiform Bacillus and Vincent's Spirilla.

The old names ''ulcerative stomatis'' and ''Trench Mouth'' are misnomers. The former means ulcers on the mucous membrane, while the latter is even more misleading. The disease was practically non-existent among the soldiers while in the trenches. Personally I never heard of it except at the base and in England. It was observed most frequently among the officers and men when they were out of or behind the lines. In any case, even if it were a disease of the trenches, Acute Fuso-Spirillary Gingivitis, because it describes the disease, is infinitely superior as a cognomen to "Trench Mouth.''

II. Causes:

(a) *Predisposing* - While the immediate causes of the disease are the above mentioned bacteria, undoubtedly there are predisposing factors which tend to lower the resistance of the body to infection. Too much stress has hitherto been laid on these, a fact which has likely contributed to the non-success of many previous treatments of the disease. Among the special predisposing causes, Osler mentions insufficient and unwholesome food, improper ventilation and prolonged cold damp weather. Lack of cleanliness of the mouth, the presence of carious teeth, and collections of salivary calculus are also given as predisposing causes. He also says that it occurs particularly in children after their first dentition.

(b) *Actual* - The primary and actual cause of the disease is bacterial infection. The very fact that the disease often is a widespread epidemic in institutions and in camps would show that it spreads as a specific disease. In the army the soldiers with this condition were never isolated from the rest, and the fact that it was so prevalent in rest camps, bases and training depots, where there were large numbers of men, would prove that there must be a specific organism. In the line each man had his own mess-tin and knife, fork and spoon; but in the camps, eating in mess-halls, plates and mugs were generally supplied and as the dish-washing was usually only rudimentary - certainly there was no sterilization - it is no wonder that when once the infection started, it would spread like wildfire. Another fruitful cause would be the indiscriminate drinking from beer-mugs in the wet canteen. I have mentioned these sources of infection to combat the theory that I have heard advanced, that it was the change of diet that produced the disease when a soldier came out of the line and went down to a rest camp.

The organisms responsible for Acute Fuso-Spirillary Gingivitis are the Bacillus Fusiformis and Vincent's Spirilla. These are generally supposed to be closely associated in some sort of symbiotic relation. Evidence exists, however, that these two forms may be simply different phases in the life of one organism (Jordan: General Bacteriology, P. 371). The fusiform bacillus is anaerobic, a long slender organism with pointed ends, slightly swollen in the middle. Hence it is referred to as spindle-shaped or fusiform. It is non-motile and does not stain by Gram's method. In fluid media its growth is flocculent and whitish. Cultural features are not especially characteristic. A foul odor is usually present, and no formation of gas bubbles in glucoseagar. In smear preparations a long spirilla - Vincent's spirilla - is always associated with the fusiform bacillus. In cultures all attempts to obtain this spirilla without the admixture of the bacilli have failed, so these organisms must either act in symbiosis or be different phases of the same organism. Smears from Acute Fuso-Spirillary Gingivitis and from Vincent's Angina always show these two organisms. So, taken into consideration with the rapid spread of the disease, we must conclude the primary cause is undoubtedly the Bacillus Fusiformis and Vincent's Spirilla.

III. Symptoms:

The morbid process begins at the margin of the gingivae between the teeth. We first notice the apex of the triangular flap of gum is cut off as if by a knife. The gums become swollen and red and bleed easily. Ulcers form, the bases of which are covered with a greyish-white, firmly adherent membrane. In severe cases the teeth may become loosened and necrosis of the alveolar process may occur. The ulcers extend along the gum line of the upper and lower jaws; the tongue, lips and mucosa of the cheeks are usually swollen, but rarely ulcerated. This is salivation, the breath is foul and mastication painful. The submaxillary lymph glands are enlarged. The constitutional symptoms are severe. In addition to the above the patient suffers most intense pain.

IV. Characteristics:

The chief characteristics show that the infection is most virulent. (i) The disease has a sudden onset. (ii) There is a sensitive and serpiginous ulcer consisting of necrotic tissue and a creamy, pasty exudate. (iii) There is a characteristic fetor of the breath, which can be detected almost across the office. (iv) Hemorrhages - either spontaneous or induced by touch. If you press on the gum beneath the ulcer and hemorrhage occurs from the ulcer, it is diagnostic. (v) A neurosis exhibiting malaise, mental depression, insomnia, restlessness, loss of appetite. (vi) There is a profuse flow of saliva, often with a metallic taste. The temperature is above normal.

V. Pathology:

Here we have all the signs of acute, virulent infection. Acute Fuso-Spirillary Gingivitis always commences about the necks of the teeth at the upper part of the gingivae. The organisms gain entrance at the subgingival space, as here there is generally a break in the epithelium. A superficial death of tissue occurs and ulceration commences.

Here we have an organism producing a poison. There is reaction to injury complicated by poison. As soon as the superficial epithelium is destroyed we have the poison coming in contact with the nerve-endings in the blood vessels. We get pain, swelling and tenderness. In place of taking a long time, we have, almost immediately, marked dilation of the blood vessels due to the direct action of the poison. So rapid is the reaction that, in addition to the escape of the white blood cells and plasma, we may get diapedesis. Stasis occurs and death of the tissue and formation of the ulcer are the inevitable sequelae.

VI. Treatment:

In the discussion of treatment I shall first briefly enumerate the various methods recommended by the authorities and then shall give in detail the successful method used by Dr. Harold K. Box.

Osler says that chlorate of potash is almost a specific. It should be given in doses of five grains, three times a day, to a child, and to an adult, double that amount. Locally it may be used as a mouth wash or applied directly to the ulcerated surfaces. For the fetor of the breath he recommends a mouth wash of potassium permanganate, and silver nitrate applied to the ulcers.

Laurens mentions also potassium chlorate, phenol and the local application of powdered methylene blue, morning and evening. Also a one to three solution of chromic acid, applied by means of a cotton pencil impregnated with this solution.

A writer to the British Dental Journal advocates the application of powdered copper sulphate to the affected parts. This is left in situ for two minutes and then washed off with warm water. After meals the patient is given a mouth wash of hydrogen peroxide and an application of twenty grains of copper sulphate to an ounce of glycerine to rub briskly into the gums.

The Hospital for Sick Children in Toronto uses, almost exclusively, intravenous injections of neosalvarsan. It has been found to be efficacious and free from danger.

Treatment Recommended by Dr. Harold K. Box.

As this disease is bacterial in origin, the primary consideration to clear up the condition is to destroy the organisms, which by their toxins are producing such havoc in the tissues. To do this we require a prompt and powerful disinfecting agent. This is supplied by Churchill's Iodine followed by Silver Nitrate. As the organisms are anaerobic, we use a mouth wash which supplies considerable oxygen to the tissues in the periods between treatments. The most satisfactory mouth wash has been found to be Sodium Perborate (one teaspoonful to half a glass of warm water).

VII. Method of Treatment:

As this very virulent organism is present in enormous numbers in the ulcers, it is absolutely imperative that we prevent them getting into the general circulation. Careless curettage and above all extraction of any loose teeth are contradicted. The patient is already absorbing enough toxins without any further opening up into the blood stream. If he has had the disease any length of time before he presents himself, he will be suffering from a mild general septicaemia, and if the teeth were extracted, a fatal termination is quite possible. This phase of the question cannot be emphasized too strongly,—we must be positive in our diagnosis, and, once the diagnosis has been made, use excessive caution. We must also use great care in the sterilization of our instruments and hands after treating a case of this kind. The disease is very infectious, so we must guard our other patients and ourselves by adequate sterilization. For our hands—surgical washing, and then rinsing in 95% alcohol. For our instruments—fifteen minutes boiling. If we get the infection in our eyes, it practically means blindness.

In the actual treatment, the first thing to do is to remove the slough from the ulcer. This is easily done with a curette, taking great care not to injure the tissues. A blood clot will form from the slight bleeding on the surface of the ulcer. Wash off the blood clot with the water syringe and then very carefully dry with a pellet of sterile cotton. Remove the slough from all the ulcers in the same manner. Then apply the Churchill's Iodine and Silver Nitrate. One jaw is done at a time. Protect the tongue and cheeks with cotton rolls. Now carefully dry the surfaces of the ulcers and the teeth and gums with sterile cotton. Saturate a pellet of cotton in the Churchill's Iodine and then *tap* it at the contact point above an ulcer. The drug will flow all around the tooth and over the ulcerated area. Treat every ulcer in a similar manner. After the Churchill's Iodine, Silver Nitrate is applied in exactly the same way. The strength of the solution of Silver Nitrate used will vary with the case. 10% is usually strong enough, but in some cases 40% may be used.

In a severe case, the above treatment should be done twice a day for three or four days. Then once a day until all ulcers have been cleaned up. Between times the patient must use the mouth wash of Sodium perborate (one teaspoonful to a half glass of warm water) every half hour while the disease is rampant. After it has been controlled, he can gradually decrease the number of times a day but he should keep on using it fairly frequently for three or four weeks.

Once the mouth has been put in a healthy condition we can then remove any teeth which have lost their necessary bony attachment and can curette pus pockets, correct occlusion and do operative work. But while the acute infection is present, surgery of all kinds in the mouth is absolutely contraindicated.

VIII. Prognosis:

By using the treatment outlined above the prognosis is good. If surgery is attempted or teeth are extracted the prognosis is grave. A bad case should be fairly well cleaned up in ten days.

A correct diagnosis is a pre-requisite. Then a rigorous treatment carried out thoroughly. To be successful at all the treatment must be thorough. Co-operation of the patient in using the mouth wash is essential. As the pain is so intense and the fetor of the breath so noticeable, the patient will be only too glad to assist.

After treatment the teeth should be given a thorough prophylaxis and all primary causes of irritation removed. Careful attention should be paid by the patient to diet and hygienic surroundings and, if necessary, constitutional symptoms should be treated by a competent physician.

The Material for this Thesis was obtained from:—

1. *Osler—"Principles and Practice of Medicine."*
2. *Laurens—"Oto-Rhino-Laryngology."*
3. *Jordan—"General Bacteriology."*
4. *Delafield and Prudden—"Text-book of Pathology."*
5. *Dr. Box—Lectures.*
6. *Clinical Demonstrations.*

ON TO CLEVELAND, SEPT. 10-14.

Practice in the Forsyth Dental Infirmary

Aileen McDonagh, D.D.S., L.D.S.

Replying to request of Dr. Webster for an article on the Forsyth Dental Infirmary for Children, Boston, from the interne's standpoint, this article has been written with that object in view. I have tried to give as briefly as possible the routine work of the infirmary. There are about twenty-five internes on the staff and they come from colleges all over the United States and a few from Canada. They are not required to take the Massachusetts State Board Examination.

For the first month, which is known as the "qualifying period," all cavity preparations and fillings must be passed by the Chief of the Dental Clinic and a certain number of credits must be obtained in a month. This includes all decisions as to the filling material. While qualifying, the interne may be questioned at any time and on any subject pertaining to his work.

The hours are from 9 to 1 and from 2 to 5 with seven working periods in the morning and five in the afternoon. Each interne is expected to do as much work as possible in the period without going overtime. The number of operations required in a day is approximately twenty-five. When a child comes for the first time, or for the first time after dismissal, he is assigned to an operator. The operator makes his own examination and does what work he desires to do—the most urgent filling and treatment to be done first. When the work is completed, which usually takes from one to three visits, the child is examined and dismissed from the Dental Clinic by the Chief of that Clinic. If necessary, he is sent to the extracting department and from there to the nose and throat department. If no extractions are necessary, the child is sent directly to the nose and throat department for examination. In all cases where it is required, tonsils and adenoids are removed. When this department is satisfied with his condition, the child receives a dismissal slip which is good for six months. At the end of that time the child returns and the whole routine is gone through again. It is easy to see what a splendid system this is and how much good an institution such as Forsyth can and does do.

Only plastic filling materials are used. These include amalgam, oxy-phosphate cement, zinc oxide plus eugenol and zinc oxide and eugenol plus silver nitrate. Amalgam is used in permanent teeth only. The interne gets a great deal of experience in this work and a chance to perfect his technique. This of course helps in inlay work. Oxy-phosphate cement is used in shallow clean cavities in deciduous teeth and in permanent anteriors. Zinc oxide and eugenol paste, plus a small amount of silver nitrate, makes a paste which hardens fairly rapidly and becomes almost as hard as cement. It is used in deeper cavities in deciduous teeth, where all the decay cannot be removed for one reason or another, and where cement might irritate the pulp. It is used also in posterior permanent teeth as a base for amalgam, or where a conservative treatment is deemed wise. In such cases it is left for six months, at the end of which time it is removed and a permanent filling takes its place. Zinc oxide and eugenol is used where the pulp is exposed or nearly exposed. These methods are strictly for institutional work and are not intended for private practice.

After the first two months the assignments begin; they are novocaine, extraction, anaesthesia and dental orthopedics, In the novocaine clinic is done all the novocaine injecting for the dental clinic. This means pulp removals, sensitive cavities, etc. The extracting department does all the extracting for the Infirmary. This assignment lasts two months. During the first month, as junior, the interne extracts mostly deciduous teeth and a few permanent teeth. During the second month as senior, he does nearly all permanent teeth and all the injecting. Novocaine is the anaesthetic mostly used and in most cases nerve blocking. As there are usually more than a hundred patients a day, for extraction, and a large number of these are for permanent teeth, there is plenty of conductive anaesthesia for even the most ambitious. Ethyl chloride is used for deciduous teeth.

The anaesthesia assignment is connected with the surgical clinic, where the adenoids and tonsils are removed. The interne administers the anaesthetic which is nitrous oxide and ether. This is done under the supervision of an experienced anaesthetist. In this assignment the interne gets what he is not likely to get anywhere else and the knowledge gained will be of lasting benefit. This assignment also lasts two months.

Lastly, we have the dental orthopedic department. At one time there was a orthodontia department under Dr. Angle but it has given place to the dental orthopedic or preventive orthodontia department. The idea is to expand the dental arch at an early age to make room for the permanent teeth to come in in proper alignment. The system followed is that outlined by Dr. Bogue. He determined, as a result of his research, that the distance between the upper second deciduous molars from lingual groove to lingual groove should be not less than twenty millimeters. All the children under seven years are examined by this department. It is a very interesting assignment and one which can be of great use to a young dentist in whatever branch of the work he follows.

In addition to special assignments there are lectures given throughout the year. Some of these are given by heads of the departments of the infirmary and others by well known men outside. The subjects are varied, they include not only strictly dental subjects, but others of interest such as orthopedics, nose and throat and surgery.

The children are brought by the school nurses from the various public schools in and around Boston. They are also brought from the baby hygiene clinics and several similar charitable organizations. There is a social service department at the infirmary which investigates the financial condition of the families of the children. The child must be under sixteen and the family income limited to a certain amount per person. The nurses bring the children in groups of about twenty-five, usually beginning with the first grade and working upward. As the dental work of each grade is finished they are given a certificate and thus the interest of the children in the work is promoted.

ON TO CLEVELAND, SEPT. 10-14.

Good Teeth Mean Good Health

From the Public Service Commission, Chicago Dental Society

A child cuts its first tooth at about six months of age and the first (or temporary) set, should be complete about the end of the second year.

Thumb sucking or the use of pacifiers are positively injurious and cause many deformities of teeth and jaws and frequently cause marked change of features.

Now remember this:

When the child is about 6 years of age, the first permanent molar comes in behind the temporary teeth and before any of the temporary teeth come out, and is usually mistaken for one of the temporary teeth and neglected. If allowed to decay too far, it may be lost and it will never be replaced.

The first permanent molar is the largest and the most important tooth in the head and has the greatest influence on the proper growth of the other teeth and jaws.

Clean teeth do not decay.

It is important that the temporary teeth should be kept clean and filled if necessary to preserve them, until nature is ready to cast them off.

The early loss of the temporary teeth has a direct influence on the development of the jaws and may cause serious deformity or irregularity of the teeth. Decay in the temporary teeth, may cause pain for the child and its health and growth are injured by inability to properly chew its food.

Decay is chiefly due to food remaining in contact with the teeth. This food decomposes, forming acids, which attack weak spots in the enamel covering the teeth, by dissolving the tooth substance.

Teeth should be brushed after each meal.

The most important of all is after the last meal, because it is during the period of sleep, that the acids have the best opportunity to act.

To properly clean the teeth, use a small tooth brush with stiff bristles, brushing the outer, inner and grinding surfaces of the teeth.

The teeth of each jaw should be brushed separately, brushing the upper teeth down and the lower teeth up. Do not brush up and down with the teeth in contact, because this method will injure the gum tissue and crowd the gum away from the teeth.

No tooth powder, tooth paste or mouth wash, ever manufactured, will destroy germs or neutralize acids about the teeth, if applied and then washed out at once.

To secure the best results, apply a small quantity of the powder or paste with your finger, rubbing it in between the your teeth—Allow this to remain at least 3 minutes while washing your face and hands and combing your hair, then brush your teeth.

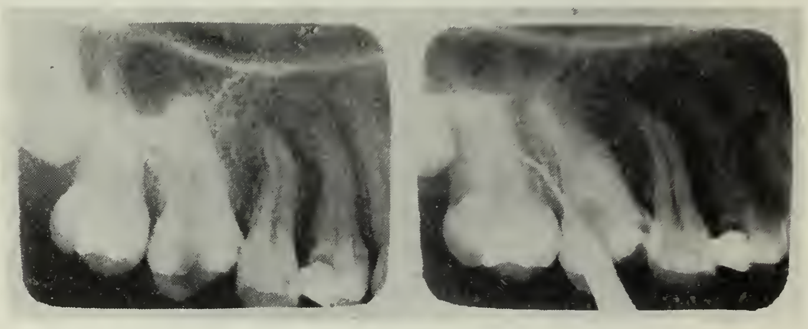
This allows the dentifrice to chemically affect the decomposing food and neutralize the acid.

Good teeth are necessary to proper mastication.
Proper mastication is necessary for good digestion.
Good digestion is necessary for proper assimilation.
Proper assimilation is necessary for good health.

ON TO CLEVELAND, SEPT. 10-14.

A Broken Hypodermic Needle

A short steel needle was broken off in the tissues opposite the buccal roots of the upper right first molar in a young patient. Before the tooth was removed, two X-ray pictures were made, one of which shows the extremity of the needle and the other with the hub and remaining portion of the needle as nearly in the position of the needle as it could be held by the operator when it broke. With the aid of these pictures and the removal of the tooth, the needle was found. This method of discovering is not infallible but it assists, if several pictures are made.



New Vaccination Theory

Workers at the Pasteur Institute in Paris have been diligently following up a new line of research which was suggested in the first instance by Dr. Besredka and has already been described in *The Times*. The thesis is that the microbes which attack us limit their attacks to special portions of our bodies. No matter into what area of the body they may penetrate, they invariably pass to the structure which is their natural "soil."

Thus, if typhoid bacilli are introduced into a vein they will travel through the body until they come to the wall of the bowel. Only when this has been reached will they lodge and begin to multiply. In the same way the bacilli of anthrax seem to have a selective affinity for the skin, so much so, indeed, that they can be eaten without harm by animals peculiarly susceptible to them. Provided the skin is not reached by them no ill effects occur.

It would seem to follow from this that disease represents the coming together of a special germ and a special tissue and not merely the entry of a special germ into the body. Consequently, immunity to disease must represent the rendering unsuitable of the special tissue rather than of the body as a whole.

In other words, immunity must be local, of the tissues and organs rather than of the blood. This is a new idea and one which offers a fresh vista of knowledge. It has already, to some extent, been put into practice by the use of vaccines administered by the mouth. These have been employed against typhoid and cholera and other bowel diseases, with, it is said, excellent effects. The vaccine passes straight to the special tissue inhabited by the special germs against which it is being used—the bowel wall. It renders that special tissue unsuitable for the "seed" and so confers immunity.

Perhaps, in the same way, immunity to a disease of the skin may be afforded by rubbing a vaccine into that structure or injecting it, not under but within, the layers of the skin.

The important point is that a kind of dethronement of the blood as the chief agent of attack on our microbial enemies is threatened. The work is still in its early stages and requires confirmation. Yet researches in other directions have seemed to lead to a conclusion which if not identical to, yet resembles, that reached in Paris.—*The Times*.

Educating the Public

In the second part of the resolution, the information is given that "interference with the dentist's right to advertise would be detrimental to the public interest, in that one of the grandest methods of educating the public would be unjustly eliminated." Though we may be a little dull of comprehension at times, we readily diagnose this outburst as an exhibition of wit, combined with an attempt to capture the ear of some unwary politician at the right moment. "One of the grandest methods of educating the public!" Poor public! The joke is almost worthy of Mark Twain at his best. "I will forfeit £35 if I give the slightest pain." "The children say I am the most gentle dentist in Sydney." "My plates are life-like, and practically unbreakable." These expressions of our imagination are on a par with many of the cheap and vulgar statements which appear in the press, and, apparently, form one of the "grandest" methods of educating the public. Ye gods! Let us close this paragraph and get on to something more sensible.

The Dental Science Journal of Australia

Relativity: Finite vs Infinite

Possibly a great many of the readers of The Dental Register have read of Mr. Einstein and of his theory of relativity. The scientific theories which are enunciated by great scientists are often based upon a fundamental thought so far removed from what the superficial deductions of the theory are that the truth of the theory is not often understood Thus it seems to be with the Einstein theory. When Columbus was trying to convince scientists that the world is round the prevailing theory was that the earth was a flat space. The present idea of space is very similar because it conceives space as rectangular with straight lines. Einstein has applied the spherical theory of Columbus to space and deducts therefrom that space is spherical; that a line of travel through space brings one back to the same place; that there is no infinity, but space is absolutely finite. It is very large of course but still finite. This principle may have many new angles and bring explanation to many scientific problems. It coincides with the wisdom of the ancients that the circle symbolizes the universe and all there is in it. Mr. Einstein has placed his name on a high pinnacle of fame for scientific research. *Dental Register.*

The Psychology of Color

The fad of having a particular color wax for waxing up plates in prosthetic work is becoming noticeable. Pink and yellow have been the vogue for many years, but this spring a green color is being advocated and also a black and a maroon. Of course a college professor will rightly explain that so far as the waxing up is concerned it makes no difference what the color of the wax is and that is right. It really does not make any difference. Here is where the difference comes in: it is like the lady with neurasthenia who insists on pink pills; the color has a psychologic value and distinguishes one make or brand of wax from another, although all are wax. The color really does not add to the cost either. The purity may, but the color never. Purity would call for lack of artificial color. It is something like tea. It was started plain, but someone took up the plan of coloring it, and it really has taken such a hold, that most of us, if we saw real tea, would not buy it, but would buy the colored tea. There is something to it. But why start it on wax?—*Dental Register.*

The Value of Suggestion

In Hawaii there is a custom among the natives to pray another to death. It is just the opposite idea practiced among some Americans to pray a sick person back to health. Both these practices illustrate the force of suggestion and demonstrate that the practice is not so idiotic as at first appears. Prayer itself as given to human beings is a force which, together with the above explanation of its suggestive value, can be made very useful. Christians find it useful and often find it needful. The suggestive force of the "movies" is a subject constantly kept in mind by the censors. Many events in the practice of dentistry require a knowledge of the value of suggestion. The expression "Imagination Rules," as used by lecturers on psychology, is well illustrated by the public fear of dental pain. The extraction of a tooth is really a relief and a cessation of the pain, but the patient thinks otherwise and blames the operation for the pain.

—*Dental Register.*

Saskatchewan Pioneers Honored

Dentists from Regina, Saskatoon, Moose Jaw and other points gathered at the Assiniboia Club, Regina, last month, to attend a banquet given in honor of Dr. W. D. Cowan and Dr. J. F. Guerin, pioneer dentists of Saskatchewan.

Dr. Guerin has been practising dentistry in the west for 40 years, and Dr. Cowan for 33.

Dr. Gregor Smith, president of the Regina Dental Society, presided. He welcomed the members of the profession who came from outside points and went on to speak of Dr. Cowan's consistent optimism during his many years of work. ''In the face of varying conditions, I have known him for 17 years, and while others have talked 'blue ruin,' I have never heard Dr. Cowan speak disparagingly of Regina or the west,'' declared Dr. Smith.

He thought Dr. Cowan's spirit of generosity was one worthy of emulation. ''He was always spoken of as a generous, big-hearted man,'' he continued. ''He was willing to give not only his money but his time and his services for the benefit of others. Dr. Cowan was the first dentist who ever sat in the Dominion House of Commons, where he proved himself a conscientious, hard-working representative. He was mayor of the city of Regina for two years, and made a capable head of the city council.''

Dr. L. Steele, who has been practising in Regina for about 20 years, proposed the toast to Dr. Cowan.

A gold-mounted cane, the gift of the Dental Society was then presented to Dr. Cowan by Dr. L. J. D. Faskin, who said the dentists hoped Dr. Cowan would use it for many years to come.

Dr. Cowan said that he was now at work on a history of dentistry in Saskatchewan for an eastern publication. He spoke of the organization of the College of Dentistry for the Northwest Territories, and of the first meetings of the provincial association, and went on to relate experiences of his early days in the west, when he covered the whole western territory from Manitoba to the Rocky Mountains.

Dr. Robb proposed the toast to Dr. Guerin, speaking of his activities in the Boat Club and in musical circles. A gold-mounted cane, similar to that presented to Dr. Cowan, was handed to Dr. Guerin by Dr. C. H. Weicker.

DR. W. D. COWAN

In his reply, Dr. Guerin said he came to the country in 1883. He had started practising in Brandon, and had later come to Qu'Appelle. Like Dr. Cowan, he had visited a good many towns, scattered miles apart, driving through all sorts of weather. He had been in Regina for 17 years.

A toast to the visitors from out of town was proposed by Dr. W. J. Mooney. Dr. Silknetter, president of the Moose Jaw Dental Society; Dr. Winthorpe, of Saskatoon; Dr. Irvin, of Moose Jaw; and Dr. Rondeau, of Rouleau, replied.

Montreal Dental Study Circle

A regular meeting of the Dental Study Circle was held in Salon E of the Mount Royal Hotel on Wednesday evening, March 14th. Dr. J. Rubin occupied the chair.

The meeting was preceded by a banquet and the gathering that sat down to the table was most noteworthy. Various members of the dental and medical professions of Montreal were guests amongst which were Drs. A. W. Thornton, T. H. A. Baxter, G. Cameron, A. C. Jack and T. G. Henry of the Dental Faculty of McGill University, Drs. E. Dubeau, Nolin Charron, and Lauseueur of the University of Montreal, and Dr. Pennoyer of the Montreal General Hospital.

The "cause célèbre" was a visit to the circle by Dr. Theodor Blum of New York. Dr. Blum as the lecturer of the evening chose for his subject "An Informal Talk on Oral Surgery." Dr. Blum covered various phases of surgery in the mouth. The informality of the lecture allowed many questions to be asked and the number of these that were asked proved the value of the talk. The discussion that followed was opened by Drs. A. W. Thornton and Nolin. All expressed their appreciation of the privileging of hearing Dr. Blum on a subject, in the practice of which he excels.

Towards the end of March was held the annual general meeting of the Circle. The secretary's and treasurer's reports showed the year 1922-1923 to have been a most satisfactory one from every point of view. Amongst the lecturers of the year were Drs. A. W. Thornton, T. H. A. Baxter, Charron, S. Bass, and T. Blum, and the attendance at the meetings was excellent.

The main business of the meeting was the election of officers for the ensuing year and resulted as follows:—

President—Dr. H. M. Halperin.
Vice-President—Dr. N. Lande.
Treasurer—Dr. T. N. Pesuer.
Secretary—Dr. G. Franklin, 1539 Esplanade Ave.
Honorary member—Dr. Theodor Blum.
Executive members without portfolio—Drs. F. Mendel, B. Gold and L. Schachter.

The Circle decided to send a delegation, headed by Dr. A. S. Solomon, to the 10th Anniversary Convention of the Allied Dental Council to be held in April in New York City.

Victoria Dental Society

The Annual Meeting of the Victoria Dental Society was held April 17th at the Dominion Hotel, with a dinner at 6.15 p.m. Those present were Drs. S. Youlden, A. Poyntz, L. K. Poyntz (Radiologist), McKeon, Russell, Garesche Harper, Gunning, Nichols, Henderson, Griffiths, Lough, Hall and Hetherington.

The election of Officers resulted as follows:—

President, Dr. Reginald E. McKeon; Vice-President, Dr. R. Ford Verrinder; Secretary, Dr. E. W. Hetherington, (re-elected); Treasurer, Dr. Arthur Poyntz; Executive, Drs. Lough, Hall and Russell; Librarian, Dr. H. J. Henderson.

The Victoria Dental Society wishes to report that it now holds a joint meeting place and library with the medical society, and finds that it has benefitted by co-operation with the medical practitioners in many ways, also joint dinners are being held.

The American Academy of Periodontology

The Tenth Annual Meeting of the American Academy of Periodontology will be held at the Hotel Statler, Cleveland, Ohio, September 7th and 8th, 1923; just preceding the convention of the American Dental Association, in Cleveland, from September 11th to 14th inclusive.

The Sections of Orthodontia and Periodontia will conduct its meetings in the Ball Room of the Hotel Statler the week of September 11th, making it convenient for Academy members to attend these meetings.

The 1923 meetings of both the Academy and the American Dental Association promise to be the largest in the history of the organizations and it will be necessary for you to make reservations immediately with the Hotel Statler and state that you desire your reservations to continue through the week of the American Dental Association meeting. These reservations will be acknowledged by the Hotel, on special blanks provided for that purpose. This will assure you accommodations and prevent confusion on your arrival.

The Academy meeting will be called to order Friday, September 7th, at 10:00 a.m., in the Ball Room of the Hotel Statler. The Program Committee has already secured some of the best talent of the Medical and Dental professions for this meeting.

This being the Tenth meeting and held in Cleveland, the City where the Academy was organized, the Officers and Members of the Council are desirous of having every member attend this 1923 meeting.

Alberta Dental Convention

1923 CONVENTION, JULY 23, 24, 25, 26, 27 AT CALGARY.

The Biggest and Best-ever Alberta Dental Convention will be held in Calgary on July 23-4-5-6-7.

The Registration and General Meeting will take place on the first day, after which, educational features will form the principal part of the programme.

You will agree that these educational features will be of the highest possible standard, when we mention that the guests for the Convention are to be Dr. Arthur D. Black, Dean of the Dental Department of Northwestern University, Chicago, and Dr. Huston F. Methven, Professor of Prosthetic Dentistry, in the same University.

Dr. Arthur D. Black is the son of the late Dr. G. V. Black, whose works are known to the whole dental world, and he is ably upholding the precedents laid down by his father. He is one of the greatest authorities on Operative Dentistry, Dental Pathology, and its kindred subjects.

Dr. Huston F. Methven has been for years a teacher in the Northwestern University and his reputation has been built up chiefly as an expert in Prosthetic Dentistry, in which he has no superior in America.

We would strongly urge you to avail yourself of the opportunity of hearing a series of lectures and demonstrations from such acknowledged authorities on two of the most important branches of dentistry, and we can assure you that you will never regret spending the time and the money necessary to attend these lectures.

The pleasure side of our Convention necessarily takes second place, but it will not be neglected. As usual, we will hold our regular golf tournament for the Ash-Temple Cup, and our annual banquet will not be the least pleasing function of the occasion.

Some of our visitors will be motoring in for the Convention, and for their information we wish to mention that the new Banff-Windermere Road will be opened this summer, and no finer vacation can be conceived for a motorist than a tour over this magnificent and most picturesque circle highway.

We cordially urge you to come to our Convention this year. Make your arrangements now to be here. You will benefit immensely educationally, and we will do our best to make sure that you enjoy yourself to the utmost degree. Arrangements have been made for the entertainment of the ladies as well, so bring your wife along.

You will receive from time to time further and full particulars in connection with the Convention.

P. G. ATKINSON,
Chairman, Convention Publicity Committee.

Royal College of Dental Surgeons

Examination results of the graduating class of the Royal College of Dental Surgeons and the Dental Department of the University of Toronto show the following students have completed the course:—

Melvin Akins, Alexander W. M. Allan, Ernest F. Allen, Gordon Allingham, William M. Arthurs, Isaac P. Asselstine, William Atkinson, Wilbert L. Attridge, Elmore B. Baker, Guy L. Baker, Omar Baker, Wallace W. Baxter, Robert J. B. Bayne, Preston A. Beattie, Charles L. Beck, Wilson Bedell, William R. Bennett, Frank R. Bicknell, Samuel R. Bird, Melvin R. Blackburn, (Alg.), Roy S. Blackstock, John C. Blakley, Thomas F. Blight, Horace C. Bliss, Andrew A. Boyd, Joseph A. Boyd, William F. Bradley, Riley A. Bradford. Harry M. Bradley, Clarence L. Brady, Robert E. Brayley, Andrew P. Brennan, James V. Broderick, Richard N. G. Brown, Delmer F. Brownlee, Harold L. Bruce, Allan J. Buchanan, Frances M. Burnet, Earle S. Burrows, Cyril V. Bussey, William J. Butcher, Allan G. Campbell, Garrett J. Cameron, Lister H. Cameron, Philip H. O. Canniff, William J. Carson, Alan L. Clark, Neil Clark, Ward F. Clark, Robert W. Clements, Alfred Clermont, Arthur A. Collins, Allan R. Cooke, Harry M. Cooke, Arthur W. Coon, Dwight S. Coons, Stanley H. Corben, Wilfrid C. Coristine, Wallace M. Coutts, Harvey H. Cowen, Crawford C. Craigie, William A. Crich, Edward M. Crough, Duncan A. M. Currie, (alg.), David L. Curtis, Francis J. A. Daly, David R. Davies, Wilbert G. Davis, Charles S. Dawe, Robert A. Dinniwell, Norman A. Dobbie, John E. Dobson, Frederick E. Dodds, Stanley K. Donald, William E. Dorsey, Frederick N. Downe, Clarence A. Dudgeon, Donald W. Duncan, Gordon A. Dundas, John F. Edgecombe, John G. Elsey, Milton H. Fennell, Robert M. Findlay, William L. Finlay, Arthur R. Firstbrook, Walter S. Flora, Irwin E. Fonger, Norman B. Forrester, James R. Fowlie, Jess C. Fullerton, Robert J. Gawley, Harvey Gellatly, Allan W. G. Good, George F. Goy, James A. Graham, Joseph R. Graham, Charles T. Gray, Gordon T. Greig, Earl W. Greuzebach, Gordon S. Gropp, Donald W. Gullett, James C. Guthrie, Clifford B. Hallett, William S. Hamilton, Irving J. Hance, Leslie F. Hare, James J Hartford. William R. Hendry, Percy Hill, James A. Hillier, James D. W. Hindson, Harry E. Hobbs, Gordon A. Hodgson, Edgar M. Honey, Samuel L. Honey, Ralph W. Huffman, Robert Hurton, Earl C. Jackson, Gordon M. Jackson, John A. Jackson, Charles R. Jarvis, William P. Jebb, James G. Johnston, Thomas O. Jones, George E. Jordan, Wilfrid R. Junkin, Vincent Kelly (aeg.) William C. Kelly, Stanley W. Kemp, James F. M. Kennedy, Frank P. Kenny, Lee A. Kilburn, Mabel G. Killins, George A. King, John B. King, Oneitta Kinsella, William O. Laing, John H. Langtry, Martha E. Law, Howard J. Lawrence, Gordon R. Lawson, Harold G. Learoyd, James P. Leighton, William J. Linghorne, Howard G. Lloyd, William J. M. Lloyd, Frank M. Lott, William R. Louden, Robert P. Lowery, George W. Lyons, Wallace W. McBain, Augustine MacBeth, Alfred M. MacCormack, David W. McCord, Hubert C. McDonald, John L. MacDougall, Richard H. McDougall, James A. McGinnis, Harry A. McIntyre, George M. McKay, Hugh E. McKellar, David I. Mackenzie, Wm. F. MacKenzie, Dewey L. McKerracher, John A. McKinnon, Howard T. McLachlan, Wallace L. MacLaren, Frederick J. MacLean, William C. McLean, Daniel MacLellan, Cecil D. McLeod, Charles S. McLeod, John W. Macleod, William L. McMachen, Duncan B. McMillan, William C. McNichol, Donald S. MacPhee, Gerald R. MacRitchie, Margaret A. Maloney, James O. Mandeville, Henry P. Mang, Samuel C. Mann, Harry M. March, Frank Martin, Vincent A. Martin, Cyril H. May, William E. Meldrum, Philip F. Metzger, Rollie L. Miles, Walter A. Miller, John G. Mills, Norman L. Milne, Glenn T. Mitton, Milton Montgomery, Charles N. Morphy, Harold D. Morris, Reeve W. Morrison, Percy W. Morton, Cecil Moyer, Wilfrid M. Moyer, James R. Mumford, Hector A. Mutton, William M. Myles, Claude A. Nelson, Frederick J. Netherton, Ralph L. A. Noonan, Thomas H. Norval, Lonnie B. Nuttall, Alexander I. Palmer, Edwin R. Pearce, Percy Pearen, John A. Phillips, Albert B. Pickering, James R. Porter, William K. Prendergast, William H. Pritchard, James G. Pullar, Charles M. Purcell, Roy J. Reid, Harold A. Reilly, George E. Renwick, Walter H. Renwick, Harold C. Richards, Almond K. Richardson, Warren J. Riley, Everett D. Rivers, Harry A. Robertson, Gabriel A. Robinson, Byron R. Ross, Percy J. Ross, Eric R. Rowan, James A. Rushton, J. Allan Sampson, Alonzo E. Saunders, Leo Schumacher, Joseph M. Sedgwick, Oswold G. Shepherd, Charles W. Sheridan, Benn N. Shlain, Harold R. Skilling, Echlin D. Skuce, Frederick R. Smith, Gordon C. Smith, Herbert H. Smith, James W. Smith, Norman C. Smith, William L. Smith, Clarence W. Smythe, Earl S. Somerville, Frank E. Sproule, Frederic A. E. Starr, George E. Staughton, John O. Staughton, Arthur C. Steeves, Roy L. Stephenson, Evan A. Stewart, Ermand F. Stewart, Lloyd A. Stirling, Lloyd J. Stuart, Stanley C. Sudden, Stanley H. Sutter, Creel A. Tanton, Andrew W. Taylor, George R. Thompson, Robert A. Torrance, Cecil J. Towner, William L. Trueman, Milton S. Tucker, Charles Usher, Ruth Vann, Frederick W. Vivian, William O. Vrooman, Allan B. Wallace, Ernest Wallace, George A. C. Walley, Lloyd D. Walmsley, John L. Walsh, Elgin M. Wansbrough, Robert C. Wansbrough, James C. Ward, Walter C. Ward, Arthur W. Waring, Thomas W. Warner, Harry W. Weagant, William A. Weatherhead, George H. Weber, Eugene J. Weiler, Frederick J. Wentworth, Lawrence Westlake, Roy V. Weston, William L. Whitelock, Theodore F. Weise, Jonathan Wilkinson, John M. Williams, Russell A. Williams, Francis S. Wilson, Ray H. Wilson, Richard E. Wilson, Victor S. Wilson, Hyman Winkler, Lorne Main, Alexander R. Woods, Richard E. Wyatt.

Following students are required to complete credits as indicated: A. L. Baker, Medicine; H. Coate, Operative Dentistry (term); John G. Dormer, Operative Dentistry (term); C. E. Gibson, Medicine; J. A. Gillies, Exodontia; M. P. Heather, Medicine; J. E. Jackson, Medicine; L. D. Kay, Medicine; M. C. Sykes, Clinical Dentistry; T. H. Young, Medicine.

Examination results of the Training School for Dental Nurses, Royal College of Dental Surgeons, show the following students have completed the course: Ruth Laurie Bender, Ruth Aleda Edmunds, Aileen Lauretta Fahey, Mary Amelia Halliday, Laura Pearl Jennings, Gladys Goulding Jones, Frances Irene McNally, Gladys Mary Kathleen Miller, Charlotte Muriel Rhind, Ellen Evelyn Rollison, Annie Edna Margaret Spratt.

Following student required to complete credit in Operative Assistance: Gladys I. Jack.

Canadian Dental Association

Financial Statement, May 19th, 1922 to April 13th, 1923

1922		
May 19th. Balance, General Account,	$359.69	
Oral Hygiene Committee appropriation	175.00	$534.69
June 30th. Interest (Bank)		8.10
1923		
Jan. 16th. Cheque from Treasurer Joint Convention		496.29
Jan. 1. Interest (Bank)		7.45
1923. Total		$1046.53

EXPENDITURES

1922	
June 3rd. United Typewriter Co., repairing Machine	$10.50
Sept. 14th. Robert Simpson Co., Decorating Booth	16.00
Sept. 20th. Ontario Press Ltd., printing poster cuts and lectures to Nurses,	28.50
1923	
Feb. 22nd. Miss Bambridge, Stenographic work	15.00
March 15th. Chas. Potter, Prints for Lantern slides,	1.80
April 1st. Balance to credit General Fund	846.03
April 1st. Balance to credit Oral Hygiene Committee	128.70
Total	$1046.53

Financial Statement to Opening of Convention, 1922

Receipts:

Balance from Convention in 1920	$1427.09
1 Membership fee	5.00
Board R.C.D.S., 1/3 share 2% tax costs	27.24
Ontario Dental Association, tax costs	27.24
Bank Interest	25.00
Total	1512.52

Expenditures:

Corley and Co., Legal Services re 2% tax	$ 50.00
Newton M. Young, " " " "	15.00
Printing	80.08
Grant Canadian Dental Research Foundation	200.00
Subscription Dr. T. Sydney Smith	65.00
Wreath, Funeral Dr. H. R. Abbott	16.00
Grant Joint Convention Committee	500.00

Postage, Telegrams and Office Supplies	51.75
Balance on hand in General Account	359.69
Balance credit Oral Hygiene Committee	175.00
Total	1512.52

FINANCIAL STATEMENT
JOINT CONVENTION OF THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS

May, 1922

RECEIPTS:	
City of Toronto	$ 400.00
Ontario Dental Society	500.00
Canadian Dental Society	500.00
Registrations	5,881.00
Luncheon Tickets	825.00
Dinner Dance Tickets	712.00
Canadian Passenger Assn. refund	24.85
Exhibits Committee	2,721.15
Interest	17.09
	11,601.09
EXPENDITURES	
Advertising and Printing	$ 2,332.14
King Edward Hotel	2,992.09
Essayists and Clinicians	3,765.53
Entertainment and Music	228.05
Ladies' Committee	155.00
Program Committee	149.25
Watchmen for Exhibits, Etc.	175.00
Registration Clerks	142.00
Canadian Passenger Assn.	25.00
Exhibits Committee	20.00
Clinics Committee	47.50
Postage, Telegraph, Etc.	55.45
Sundry Expenses	61.50
Honorarium to Treasurer	200.00
Honorarium to Secretary	250.00
One Registration Fee returned	10.00
Ontario Dental Society	496.29
Canadian Dental Society	496.29
	11,601.09

(Signed) W. E. Willmott
(Signed) R. G. McLaughlin
Auditors.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

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Vol. XXXV TORONTO, JUNE, 1923 No. 6

Oral Prophylaxis

When oral prophylaxis was first introduced, its advocates believed that dental caries could be prevented by polishing the surfaces of the teeth. Its chief exponent, Dr. D. D. Smith, claimed 95% successes. The real difficulty was to polish defects and proximal surfaces where caries most commonly began. After years of experience, it was noted that tooth surface polishing alone would not prevent decay, so the ground was shifted. Prophylaxis was then advocated as a toilet operation, for its help in maintaining a clean personal appearance and thus raising the patient's self-respect. Next it was advocated to prevent peridontal disease and the latest reason is to prevent general systemic disease.

Each reason suggested is sufficient for its practice but the difficulty is that the profession, as a whole, does not believe in oral prophylaxis. It is just as Dr. Bricker well said at the recent Ontario Dental Meeting, the dentist pretends or thinks he is practising oral prophylaxis and oral hygiene while he is really only half-heartedly doing either.

Reports to Ontario Dental Association

At the annual meeting of the Ontario Dental Association there were several reports made from the official body of the dental profession—the Board of Directors of the Royal College of Dental Surgeons of Ontario. The procedure should be followed in all future meetings. The profession is interested in a concise report of what the official body is doing. This plan has been followed in the Canadian Dental Association since its organization. Each year the Dominion Dental Council, the official dental body of the Dominion, reports to the Canadian Dental Association just that the profession may know what is being done officially.

Bulletins for the Public Press

It has often been said that the only means of public dental education comes from the advertisements of dentists in the public press and pamphlets issued by dentists who use this method of attracting patronage. The advertising dentist says he is educating the public and, of course, incidentally attracting a few patients more or less to his office. His motives are not primarily to increase the dental knowledge of the public, though this comes incidentally, but to increase his income. The Board of Directors and the Ontario Dental Society joined together to issue some authoritative dental educational literature. In all ten bulletins were issued in thirty Canadian papers at a cost of approximately two thousand dollars. We are publishing the bulletins in full so they may be available for those who desire.

Editorial Notes

Drs. Bruce, Lea, Wark, Hacking, Smythe, Davison, Russell and McKeon compose the membership of the Vancouver Dental Society. The officers are: President, Dr. Bruce; Registrar, Dr. Lea, Vancouver. These two, with Dr. Hacking, constitute the executive.

The Faculty of Dentistry at Dalhousie University has accepted the offer of the pre-school age dental clinic at the health centre to have the senior dental students study the work of the paedodontist at her clinics conducted three mornings a week in old Admiralty House.

Dr. L. D. Drew-Brook presented a very interesting and instructive paper on pulpotomy at the final meeting of the season of the 2T0 Study Club.

The following are the officers elected for the coming season:

President, Dr. H. L. Bean; Vice-President, Dr. L. D. Drew-Brook; Secretary, Dr. M. B. Ott; Treasurer, Dr. R. M. Watson; Publicity, Dr. A. M. Hord; Critic, Dr. S. M. Richardson.

Reports come that since the recent post-graduate meeting held in Vancouver in 1921, Drs. Theodore Maves, Lester I. Furnace, and Charles A. Furrow all intend spending their summer vacation in B.C. Vancouver expects to hold a Post Graduate Meeting if possible.

Dentists should be careful to note that goods or furniture when moved from the building in which they were insured are no longer covered by the original insurance unless the consent of the insurance company has been received.

The Saskatchewan Red Cross Society's two dental cars have begun their season's operations in the schools of the Kinistino and Maple Creek inspectorates. The cars are sent to districts where the people are settled far from towns where dental assistance can be secured.

Book Reviews

INTERPRETATION OF DENTAL AND MAXILLARY ROENTGENGRAMS BY ROBERT H. IVEY, M.D., D.D.S., F.A.C.S., AND LE ROY M. ENNIS, D.D.S. SECOND EDITION, REVISED AND ENLARGED WITH 403 ILLUSTRATIONS. PUBLISHED BY C. V. MOSBY CO., ST. LOUIS, U.S.A., 1923, PRICE $4.00. DEDICATED TO THE LATE MATHEW H. CRYER, M.D., D.D.S.

This, the second edition, is enlarged and improved by the addition of many new illustrations. The first edition filled a great need. It placed the matter of the study of X-ray pictures on a sound basis. Every clinician is anxious to learn what certain shadows mean. After a study of the principles laid down, there are literally hundreds of illustrations which make the text clear.

DENTAL STATE BOARD QUESTIONS & ANSWERS, BY R. MAX GOEPP, M.D., THIRD EDITION, REVISED, PUBLISHED BY W. B. SAUNDERS COMPANY, 1923.

This is a large book of questions and answers compiled from questions from state board examinations. It is intended to supply questions for examiners and the answers for the candidates. It serves no part in education but supplies a need. It is at least suggestive to the examiner but not always so helpful to the candidate because the answers are altogether too sketchy. If it were used for suggestions but not to copy from, it would serve a good purpose.

Obituary

Dr. H. F. Guerin, Regina, Sask., died suddenly at his son's home May 21, 1923. Dr. Guerin was one of the pioneer dentists of Saskatchewan. He was a member of the Regina Dental Society and took part in all the activities of his profession, as well as those of his city. The pall bearers were Drs. Irvin Robb, W. J. Mooney, Gregor Smith, C. W. Parker, L. D. Steel and L. J. Fasken.

ON TO CLEVELAND, SEPT. 10-14.

FOR SALE—Complete Dental Equipment in old established office. Price $500.00. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St Catharines, Ont.

FOR RENT—Summer Home Georgian Bay, farm house, fully furnished, eight rooms, all conveniences, ice, milk, eggs, fruit, vegetables, good roads, motor. Apply 45 Glen Elm Ave., Toronto.

FOR RENT—Furnished house, eleven rooms, hill district, two bath rooms, two sun rooms, beautifully furnished, overlooking ravine, heated garage, possession July 1st. One year. $150. Hudson 727.

FOR SALE—American X-Ray Machine in perfect order; extra tube; for diagnostic and root canal work; none better. Box 6, Dominion Dental Journal, 73 Richmond St., W., Toronto.

ON TO CLEVELAND, SEPT. 10-14.

Dominion Dental Journal

Vol. XXXV. TORONTO, JULY, 1923 No. 7

ORIGINAL COMMUNICATIONS

The Rising Tide of Preventive Dentistry Through Education

F. A. Bricker, D.D.S., Rochester, Minn.

An Address Delivered Before the Ontario Dental Association, Toronto, May 14th, 1923.

Mr. President, Members of the Ontario Dental Association and Friends:

I am pleased to be with you. I am pleased to meet with you. This is the first opportunity I have ever had to talk to the Canadian Association, and as I told some friends today, I had a peculiar thrill come over me when I came into Toronto—something a little different than I have ever had before—I was born, you know, about sixty miles from here, and I have not been back here for about forty years now. So I feel that in a way I am at home here, because I am of your blood. Anything that I may say has been inherited from this community.

I live in a little city. We have only about 15,000 inhabitants, but we have a great many visitors who are interested in Periclasia. So every visitor we have we ask: What are you doing in Periclasia or Preventive Dentistry? and this is about the answer we get. Besides living in Rochester, I have in the last three years gone over a good deal of territory in the United States, and they all make this report, or very similar:

In our district people will not brush their mouths; they just will not do it. And more than that, they complain about paying a fee for talking to them, or giving them information. Now that runs all the way through the States, from Houston, Texas, to Boston. So I take exception to that remark. I say: Why don't your people brush their mouths? And you realize when I say brushing their mouths, I mean brushing the mouth, as brushing the teeth is just partially cleansing the mouth.

And again, what is at fault when they complain about fees? I say, "That is all right, I complain about fees too. I am in an organization here and I hear people complain about fees. I complain about fees." I paid $12 for a pair of shoes the other day, and I hollered my head off, so why should we be so sensitive about patients complaining about prophylaxis? Then I asked my friends: "Do you give them anything that would warrant a fee?"

So with that thought in mind, I am going to read you a paper entitled, "The Rising Tide of Preventive Dentistry Through Education."

The first thing we do is to educate our patient. I often give a patient this illustration. It is just a homely illustration that I have gotten up myself. Supposing your physician told you to take a certain exercise five minutes every night (illustrating the exercise) you would look that over and you would say: All right, I need that; if it is going to do me some good. You would do it for a couple of nights, then some night you forget about it, and sitting up in bed you would debate: What good is that doing for me anyhow? The chances are you would not take it very long.

But if he told you you were tubercularly inclined, that your right chest was under-developed, and by taking that exercise five minutes every night your right chest would be developed and in that way your inclination to tuberculosis would be lessened or removed, you would be much more likely to take that exercise, would you not? Now I am going to do that with your mouth,—what you do when you brush your mouth. I am going to tell you that you can eliminate approximately 80% of decay and 80% of pyorrhea, and not only that, but the mouth is more of the centre of infection than any part of the body, so you can figure it in dollars and cents, and in sickness, and you are the only one that is going to derive any benefit from it. You will be repaid to just about the amount of energy you put into it, and don't you complain to your dentist when you return, about the pyorrhea.

Then we say: if you feel that you will brush your mouth somewhere near about the way we tell you, from three to five minutes every night before retiring, and three to five minutes upon arising, for the rest of your natural born days, or as long as you expect to save your teeth—we say 80%—if you are going to do that, we would advise you to proceed with this treatment, and if there is any chance that you might not, this is the best chance to quit, and just save that money.

Then I say: You just think that over. And I want every patient that I treat for periclasia to tell me that they want to save their teeth and will take care of their mouth, else I will not treat them.

Now you can get them to say it as well as not, if you lead the conversation up to it, to let them say it gracefully.

Then when my patients come back, I don't have them complaining about my treatment, but the first thing when I look at them they will say: "Doctor, I brushed my mouth faithfully for three months, and then the hired man died, or we moved to the country and you could not buy a tooth brush, and I just neglected it, and if you will get my mouth fixed up I will take care of it from now on."

Co-operation in brushing is the secret of success in the treatment of all peridental diseases. I tell my patients: If you rely on me to save your teeth, I will guarantee that you will lose your teeth before you are eighty. It is the time and attention that you give your mouth away from me and at home that is going to save your teeth, so it is up to you. And as I tell the dentists, this is one phase of dentistry that you can practise and be a Christian, as you can put all the blame where it belongs—on the patient.

Now we have the introduction to our patient, and they decide that they are going to have their mouth taken care of. Then we say: The first thing we are going to tell you is where decays are caused and what causes decays to begin, what causes deposits and where deposits begin, and what causes periclasia, (and we call it *periclasia,* too). You will hear them going out into the reception room and they will call it periclasia, and someone will say: That is pyorrhea, and they will say: No, no, it is periclasia, that is the new name for it.

Then we tell them what is the cause of periclasia and where it begins. Then we tell the patient: I want you to pay strict attention, as you are going to be quizzed on this when we get through. Then when we get all through I want you to know just as much about the treatment of pyorrhea as I do, and I want you to know it so well that you can discuss it with your dentist at home.

I am located at a place where we meet patients from all over the country, and I do it to get the man at home, as if this patient has been doing as he has instructed, he has not been giving very good instructions, otherwise she would not be there for me to treat her. And when she goes back it will make him sit up and take notice, and he will say: Where in the world did she get all this?

I lectured to a big crowd in Chicago recently, and I said: "Why are you here? You are here because someone is stepping on your toes, and you are here to get answers to these questions." (Speaker here enumerated a number of the present day questions which are asked of dentists, such as "Are bad teeth detrimental to health?" etc.) "That is why," he continued, "preventive dentistry is the most interesting subject we have to-day. We have got to answer these questions, because you know how I feel when they talk to me when I can't answer them. You are here to get something to handle your practice with.

So we start out: What causes decay? Decay begins wherever we allow a film sufficiently long to ferment, which forms lactic acid and disintegrates the enamel, and then we call it a cavity.

Before we talk to them, we say: How do you brush your teeth? They give various answers. Well, I say, all right. I have looked at the mouth and I don't have to ask them, because I know, I can see. So I will say: Did you brush your mouth this morning? Usually they will say: I brushed it just before I came up here. Well, you may have been in a hurry this morning, and perhaps you did not do it as well as usual. I am going to give you a brush now, and I want you to brush it well, because when you get through I am going to show you just how well you have brushed your mouth. I know they are not going to touch the spots I am looking for in there. Even if they did brush them properly, they cannot take off a heavy placque that has been there for some time. Then when they have given it a brushing, I tell them to give it just a little more. Then I say: Is that the best you can do? Then I stain the teeth. You can use any kind of a stain. This last year I have used permanganate of potash, which makes a heavy stain. Sometimes you have to use a heavy instrument to take it off. You can get them in one grain tablets. To this I add just a little bit of boracic acid, just what you could hold on the end of a pen knife. It is a stabilizer, that is all it is. You have to make it up every ten days or two weeks because it decomposes. Then I give them a mirror, and I tell them: Now wherever your brush has reached your teeth will be clean and there will be no stain. And as a rule anyone who is used to taking care of their mouths will be horrified at the result.

I told you yesterday the principles of business are: first, attract attention; then arouse interest; create desire which terminates in action. So the first thing I have to do is to get their attention, and of course I got some of their attention, otherwise they would not be there.

But before I use the stain, I look in their mouth, and I say: "Now, Mrs. Smith, you don't keep your mouth in very good condition." Well, if it is a patient who is trying to keep their mouth in good condition, they take exception to it, and they will say: "I brush my mouth three or four times a day." And I say, "Well, really, your mouth is not in very good condition. It is a wonder you have not very many cavities." Then I say: "How is your health?" "My health is very good."

Then I say: "You are fortunate, for you have a number of conditions in your mouth which might indicate systemic troubles. Have you ever had any trouble with your stomach, indigestion, headaches, tired days when you don't feel like working at all?" (humourously). Well you know everyone has had some of those days, so you are pretty safe in pulling that one. "Have you ever had any rheumatism?" You can scare up a few symptoms. "I advise you to go to your physician and have a good examination." As a matter of fact, we really all ought to have that every one or two years. "You are not looking for any trouble, but if you have any symptoms of gastric ulcer or any heart lesions or kidney lesions, now is the time to take care of it, and if you have not any you go home and consider yourself lucky, because you are carrying in your mouth here every symptom."

By that time I have their attention.

The next thing is, they ask: "Can you keep this all off?" I say: I can keep off 80%, and the 20% you have got to go to your dentist and have him look after for you."

Then we start with the decay and tell them: Decay is caused by allowing film to remain upon the tooth and ferment, and it is not only the film, but the film gives retention for acid forming bacteria. It gives the bacteria an ideal breeding ground, so that the bacteria found in an unclean mouth is much more virulent than in a clean mouth, because it has much more to grow on.

So now you know what causes decay. About 97% of all decay forms on one of three surfaces of a tooth. We practise psychology all the way through.

I show them on a model, then I show them on my own mouth, then I give them a glass and show it on their own mouth. (That is in reference to brushing, which the speaker illustrated). Because you have got to get it up in the mouth before you can show it in the fingers.

97% of all decay forms on one of three places of the teeth, that is in the fissures and grooves, on top, in between and around the gum margin. That is where we will find at least 97% of all decay. Now when you brush your teeth, brushing teeth is the best preventive for decay that we know, and brushing the gums the best preventive for periclasia. You have to remember two things,—ON TOP, AND IN BETWEEN. You can forget the gum because the brush takes care of that automatically. We never get decay on the high spot, because if you get on the low one you will strike the high one.

What causes deposits, and why do they always appear around the gum margin? What is this film? It is nothing more or less than a mixture of food, lime salt from saliva, and a mixture of everything we take in the mouth. The heavy part settles on the tooth, then the mucin sets it on the tooth, and then we call it tartar. Then we say that is what causes your tartar.

What causes pyorrhea? Anything that will cause an irritation of the surrounding structures of the teeth will cause pyorrhea. Now the only one the patient knows anything about is tartar. So we say: Tartar is the main cause for pyorrhea. We know it is not altogether, but then that is all the patient can control. The main cause really is traumatic occlusion, and it is appearing so much earlier than we thought for, and the earlier we start to attack it the easier it is to prevent.

Another thing we never talk to the patient about is improper dentistry. We never talk to the patient about it; but we know it is often the cause.

The one for you to remember is tartar.

But we have two irritants of the gum—one is a mechanical and the other is a chemical, and these are the two that the patient is concerned in.

Where does it begin? About 80% of all pyorrhea begins from between the teeth. Why? Now the patient wants to know this. We want them to know the beginning of this, where the trouble begins, because that is where they want to work. Why? Because the gum tissue gets less circulation than any other part of the mouth, and we always find an absorption under congestion of tissue. We have to a certain extent an absorption of process,—you have seen it on very prominent bicuspids where the gum has receded along the root, and no matter what you would do, it would not stop until it decides to stop. Where does it stop? Just as soon as the process is thick enough to allow them as good circulation. We say all disease takes place first where you have an interference with capillary circulation, and that is, you have then a congestion and lack of nourishment, lowered resistance, invasion of bacteria, then infection, and then to the Exodentist, and then if the undertaker has not got him by this time, he goes to the prosthetic man.

But that is where we find always the beginning. So we tell the patient, your pyorrhea begins from between the teeth, lack of stimulation is why that forms, and so you have to stimulate, or force circulation if you want to cure it. We don't have any trouble curing pyorrhea, but the trouble is in keeping it cured, because our patient does not co-operate, or does not do it intelligently, and the patient of course can't co-operate, unless the dentist knows what to tell them. And my experience has been that the reason so many of us don't pay more attention to preventive dentistry is because we can collect dividends much more easily from other forms of our work than from this.

It is true, people complain a little about the fees. But I tell them: It is all right, you have a right to complain. I complain lots of times about the things I buy. After I tell my patient all about this, and why this information is more valuable to them than any restoration they get in their mouth, they go out happy, and whatever they pay for this they get more for their money than any other work they can have done to their mouth, because there is no set fee for knowledge.

And we warn them that they are the only one that is going to derive any benefit from it and can take it or leave it, but we want to have a clear conscience ourselves that we have done our duty properly, and they can do as they see fit, and if they come back I will be glad to do what I can do for them, but if they don't take care of their mouths I don't want to see them very often. If they don't care for their mouths I would rather they did not come back. If they do come back and have not taken care of their mouths, they will come back with an apology on their tongues.

I kept the record of 300 patients whom I asked: What has your dentist told you about decay?—and less than 2% out of the 300 patients said they had had nothing said to them except to brush their teeth. When we tell them to brush their teeth, it means brushing every tooth individually, not as a unit. There is no reason why anyone ought to know how to brush their mouth when he has never been told. It is up to us to teach them.

Then I say, I don't know how you brush your mouth, whether you brush crosswise and the lowers up and the uppers down. What I want you to think is where your decay starts—on top and in between. Then you brush on top and in between. Where does your pyorrhea begin? In between. Well then, the younger we are, the deeper the pits, and the more we have to brush on top; and the older we are, the flatter, and we brush well in between. So we say: Kiddies at home, you brush on top, because we find about 90% of decay on children's teeth is on the surface. Then you say you brush on top and in between. When you brush backward and forward this way (Illustrating) you only brush the high spots; don't brush back and forth. We don't have decay on the high spots. You don't gain anything by brushing backwards and forwards. Place the brush on here, (on the teeth), move the bristles just as much as the bristles will allow, keeping the ends stationary. I call it "wiggling" because everybody knows what wiggling means. I find about 95% of people have used a paint brush and I like to use it as an illustration. You know how you wiggle your brush to get the paint into a crack. With those who have not used a paint brush, I use the cleaning of a diamond ring as an example. Brush back until you feel the brush on the gums on the back, that is your guide that you are on the last tooth.

We hear, so often, that the third molars are of no account. They decay all over themselves. Why? Because there is a film on there that never gets taken off.

Now as we go through we describe the kind of toothbrush that should be used. They will ask: What is the name of the tooth brush? I tell them: I am not recommending any particular make here, this is purely an educational talk I am giving you, nothing in the way of advertising. We don't give the names of anything. We will say: You want to get a tooth brush that is straight across the end, bristles set apart so as to go between the teeth easily, and about an inch, and not over an inch and a quarter, long. If you get a tooth brush over those requirements, you just take a knife and make it as long as you want it. If you want one for the kiddie, cut a little more off the bristles. Then it should be about ½″ in depth in the bristles. So when you go into the drug store for your brush, don't let him sell you anything, but you look them over and pick out one of the requirements I describe.

Now you can only get in action about an inch to an inch and a quarter, that can stick over your teeth. The rest you cannot get any results with. Let us force ourselves to use the brush, and do the best we can, because you know it is second nature to live along the lines of least resistance." Speaker here quoted:

''Sliding along the lines of least resistance is what makes men and rivers crooked.''

"And you know, a good many of the fellows in dentistry come up against a little resistance, and they walk around it, and pretty soon their conscience does not hurt them any more. And they don't realize it, until someone beats them on the back and says: ''Take a look back here and see what kind of a record you are making.''

Then after your patient is all through, you tell him: Not later than six months from now you are coming back here to have a prophylaxis. I know you are going to take care of your mouth, but you may slide a little, and I want you back here in six months from now.

Then when they come back, I look into their mouth, and show them the spots they are not reaching,—so that they have to be reconverted at least every six months. I can't help but think of the method we are using now of giving six lessons. I got this No. 6 from a golf instructor that I was treating one day, and I said: ''How do you teach golf?'' He said: ''I don't want to take a pupil for golf under six lessons.''

''Why six lessons?'' I asked him.

''I find it takes me six times to get over to the pupils what I am trying to tell them.''

So I give them six lessons, and I brush their mouths for them, so that they can see it done. I do it for another reason. What they call brushing hard, I do not call hard at all. I say you can't over-brush your mouths if you will brush them correctly. The more you brush your gums the harder they get.

If your gums bleed, that is fine, an evidence that they need more brushing. Why? They bleed because they are tender, they need more brushing, not particularly harder brushing, but longer brushing, to stimulate the circulation.

Well, they tell me sometimes their teeth are sensitive. I tell them sensitiveness is one of the first symptoms of decay, and the decay is the result of fermentation of placque. So we have taught them how to brush on top.

Now we say: Start in and keep your brush at right angles. You know we can retain more by sight than any other way we know of,—seeing and reading we retain more than by any other method. Years ago when Professor Munsterberger of Harvard was teaching psychology he gave 298 students a memory test. He found that by reading to them they retained three-tenths of what they heard; by picturing it to them they one-tenth of what they heard; by lecturing they retained retained five-tenths of what they saw. So to-day all successful business is carried on on that plan. So we go Munsterberger one better,—we talk to them, show them. The main thing to remember is to keep the brush at right angles, just work it between the teeth. You are trying in this way to create circulation, intelligent stimulation of the mouth. We want you to create circulation in the gum tissue, between the teeth, and any old way that you can create circulation there is all right with me.

So I start brushing my teeth on top first (demonstrating). Now have a system—show me a man who does not work on a system and you will show me a failure; he may not be a complete failure, but he is not a success. Always start at the same place and finish at the same place. Then you know you have not missed any place. So I start on top. Be sure you feel the brush on the gum back of the teeth. Then I start up at the molars on the left. But have a system. I place the brush, then I just circle that in between my teeth. Then you can see that my gums get white. They are blanched because the blood is pressed out of course. Now when we brush our mouths, the upper teeth down and the lower ones up, we hold the blood in the end—and you massage in order to get circulation. In physiology they tell us you should massage toward the heart. All we want is to keep the mouth at a point of high resistance, get up plenty of nourishment. I often tell with the molars to turn the brush perpendicularly. Of course the molars are rather wide, when you get to the bicuspids they are smaller and you can brush the other way again. If you brush too fast, you don't give the blood a chance to work back and forth. If you brush too fast, you might be removing the placque, but you will not be doing anything for your pyorrhea. Take three to five minutes, I tell them to go down to the ten-cent store and get one of these little sand glasses, but don't look at it. Don't use your watch, otherwise you will be looking at the watch instead of concentrating your attention on the brushing of your mouth.

Then I have another reason for doing that,—to standardize a motion, so that you know you ought to go about that fast to go over your mouth in about three minutes to get the best results. And when you get through you see if your sand is all gone. You say: All right, I have gone my three minutes. When you have your motion standardized, put the little sand glass away, but don't give it away. In a month get it out again and see how you have kept to the system.

I tell them this just to give them some kind of a method by which to standardize the brushing. So I tell them: Do this three times in each place. (Illustrate).

Now the only method I know of where you can cleanse irregular teeth, is to just work those bristles right in there. And I use a dentrifice usually once a day,—at night is the important time to brush the teeth, as during sleep the saliva nearly stops flowing; all the damage takes place while you sleep.

Now we tell the ladies—they come home in the evenings after being to a party, and they will say: "Oh, I can't give three minutes to brushing my mouth," and they just give it a lick and a promise, and retire. I say: Don't do that; unless you are going to give them the three minutes, don't brush them at all, because if you are only going to give it a minute and a half you are not doing it any good, and a bad habit may be formed.

So we go around them and inside the same way. Always hold the brush at right angles. Now I brush them out with salt water because salt water is one of the best stimulators of the tissues that we have. And I get the salt water in this way: when I get through brushing the mouth, I put salt on the brush and put it away. I know that salt will keep the brush clean. I know all the bacteria in the brush are mine, and I am not afraid of these myself because my system is pretty well immune to my own. You keep your brush clean by salting down your brush; then when you make your salt water, you can make it with your brush. In this way you make the brush both antiseptic and you can make the salt water with it as well.

When you come to the anteriors, you place your brush perpendicularly, put your thumb back of the brush in this way, and rest it on your chin, and do your wiggling. You can feel those bristles—get them just as far between the teeth as you can. You can't do them any harm, (demonstrating).

Now the lowers the same way. Many people gag there, and for those that do we tell them to open their mouth wide and drop their tongue. The trouble you will have when you start to use this method is, it will take you some time to control the muscles of your arm, when you do that shimmying here. That is the trouble most of them have, and I warn all my patients about it.

Now we get to the anteriors, it is pretty hard to get the brush in, so turn your brush back like this, hold the hand right against your face and force the bristles between the teeth.

Now you know the lower anterior teeth are hard to keep clean, so put a lot of tooth powder on there. Now teach your patient when they put paste or powder on the brush, not to put it all on at once and put it on the front teeth, because the front teeth are the cleanest teeth you have. Half of it drops in the mouth and you spit it out, and you get back to the molars and you have nothing left to clean them with. If you want nice, highly polished teeth, don't use much dentifrice. They ask you: What is a good dentifrice? You can compare all dentifrices with Gold Dust and Sapolio. Their only quality is their abrasive. The more you brush your teeth without an abrasive the more polish you get.

Now we have the teeth brushed. Then we say: Brush the roof of the mouth and the tongue for stimulation. Now if you don't get circulation, you don't get nourishment, and without nourishment, pyorrhea, etc. Intelligent stimulation of the mouth! So we brush the roof of the mouth, then brush the gums, simply for stimulation.

Now we know we have many glands in our gums, and if you don't stimulate those glands you get a thick sticky secretion. Then we finish up by brushing the tongue. Some say they gag easily. We tell them to take their bath towel and get a good hold of their tongue with it and their fingers, and brush it.

When you are through, put salt on the brush and put it away.

I ask every patient: When you get through with your mouth, does it feel more stimulated? If I have one who says, No, it does not, I say: this must be my off-day. I will just brush that again for you, and I go after it hard. I never have to brush *over* three times—I did have to brush one three times. (Amusement).

We teach them to rinse the mouth. I teach them to do this by putting the brush under running water, have it full of water and go over the mouth, then rinse the mouth, starting between the molars, then the bicuspids, then the centrals, then right around the mouth that way. (Illustrating).

Discussion

The chairman invited Dean Webster of the Dental College to open the discussion.

Dean Webster: I want to say this: I am very glad to have heard Dr. Bricker present this subject, because he has presented it in a sane way, and in bringing the subject back to our minds, those of us who have practised for more than five years, he has brought to us the importance of the cleanliness of the mouth, that every dentist is capable of teaching, and that that is of vital importance in the general health of the public—something we do not always remember. We allow a patient to leave our office and we have not given him one word of instruction about taking care of his teeth, or his mouth, or his body. We let him go away and come back perhaps half a dozen times, and the accusation can be properly made, "Oh, why did not my dentist tell me about that before?" I have always said to the young men in Dentistry, "there is a golden opportunity, young men; if you teach your patients how to clean their teeth, you will have many more patients than those who have followed the old method of forty years ago."

Dean Webster suggested that Dr. Grant, Director of Dental Services of the Board of Health and in charge of dental work in the city schools of Toronto, who teaches prophylaxis, say a few words.

Dr. Grant: I am very glad to have heard a paper on such an important subject. I had the pleasure of meeting Dr. Bricker this morning and of having some conversation with him. It is a subject that is very much to the fore in the Toronto schools at the present time,—how should we teach the children the proper method of brushing the teeth? Dr. Bricker advocates the method originated by Dr. Charters. I had only recently heard of the method through Dr. Box. It is not the method we teach at present, and it seems almost too complicated to teach it to children. Dr. Bricker assures me it is not. But to adults it is undoubtedly the proper method to teach.

In the Toronto schools we have three dentists who are doing nothing but educational work, going around to all the schools, so that every child does receive instruction in the use of the toothbrush and the care of the teeth and mouth. We simply teach them to brush straight up and down, not the rotary motion, as it is hard to teach them that method without their injuring the soft tissue. We teach them to brush the upper teeth down and the lower teeth upwards, separate motions.

If we can find out some method of teaching the Charters method to the children, we hope to use that in the future. I think that anyone who would go into the Toronto schools and ask the children a few questions about the care of the teeth, would be really surprised at the knowledge the children have of dental conditions.

The speaker drew the attention of the meeting to the exhibit of the Oral Hygiene Committee in the Hotel, comprised of a collection of Health Posters and circulars.

He concluded: I must congratulate Dr. Bricker on his paper, and I am very glad to have heard it presented.

Dr. Conboy: During the winter we have had a number of meetings of our Oral Hygiene Committee, and we have been preparing a little booklet which you received when registering. During those meetings it was discussed whether it was possible to over-emphasize the brushing of the teeth. Some of the dentists advocated that a large number of patients were brushing their teeth too hard.

Dr. Conboy then asked Dr. Bricker if it was possible to overbrush the teeth, provided it was done properly, also asked for instructions re brushing of gums and inside of teeth.

Dr. Husband: I listened with a great deal of interest to Dr. Bricker's paper. It is a subject I have been very keenly interested in for a long time. There are certain little points he mentioned that I would like to emphasize or ask him some questions on.

He made the statement that ''teeth will not stay healthy without care.'' Is it not a fact that many, many mouths that receive but the scantiest, if any, care, are free from the disease we call caries? I have long since observed that teeth in many mouths which receive the most scrupulous care fell victims to caries. Why?

Dr. Bricker cited a case where he removed a placque from a patient's tooth, showed it to him and told him how it came there, and how it could be prevented. But he didn't tell *us* —and that is what we would like to know.

The Miller theory of caries describes the local phenomena of caries—the three factors being:

(1) The placque,

(2) The carbo-hydrate content, and

(3) The micro-organic content.
Now if we can eliminate any one of these factors, we will be able to eliminate caries.

To eliminate the placque, we have resorted to elaborate technique of brushing and flossing, but we have not been able to eliminate all the placques and keep them removed. So we have had only partial success.

To attempt to eliminate the bacteria from the mouth everyone knows is an impossibility.

The only remaining factor is the carbo-hydrate content of the placque. Can this be eliminated? Clinical evidence will assuredly answer in the affirmative. How can this factor be eliminated? Carbo hydrate food is required for heat and energy. The requirement for each individual varies in proportion to the amount of energy or vim with which he does his work. Some individuals are very energetic, while others are quite phlegmatic.

Now the physiological capacity for carbo-hydrates varies according to the type of the individual—the active requiring more than the phlegmatic. When this physiological capacity is exceeded, then caries becomes evident, and in the degree it is exceeded, in that degree does caries appear; and in the degree in which caries appears have we the clue to the degree of over-ingestion of carbo-hydrates for a given individual. The most potent class of carbo-hydrates causing this disease are sweetened foods of all kinds and those foods made from the grains, as bread, cake, etc. These foods can be reduced as long as caries persists till a point is reached (the physiological capacity) when caries will completely cease.

It is held by some that it is the carbo-hydrate alimentary debris that is responsible for the supply to the placque. But consider that even the unbrushed mouths where caries is absent have carbo-hydrate food material left in them. Why do these individuals not suffer from decay? Histories of these patients show that there is a marked moderation in the ingestion of carbo-hydrates, especially of the very concentrated class, as sugars, highly sweetened foods, bread, etc. The physiological capacity of that individual for this class of food is not overtaxed, and the fluids of the mouth soon rob this debris of its carbo-hydrate content, and it is ultimately swallowed and placed in the tissues where it is required. There is little or no excess beyond that individual's tissue requirements.

I wish to stress this point, that it is not acid and product foods that cause caries. Proteins are acid and product foods, and while excessive ingestion of them will cause other disturbances it will not cause caries.

Reference has been made to the great line of diseases resulting from unclean mouths, such as gastritis, appendicitis, tonsilitis, etc. Should we not rather regard the mouth condition as emanating from a central cause which is also responsible for the chain of diseases mentioned? The mouth condition may react just as these other disease centres may react, but the mechanical cleansing of the mouth will be very unlikely to correct the diseases mentioned except in a very partial way.

The essayist refers to periclasia and traumatic occlusion as resulting from "lack of care." Is it not true that these cases have a history of toxaemia? It may be from specific poisoning, as from lead, arsenic phosphorus, or potassium iodide or from what is far more general, auto-intoxication due to overeating, eating wrong combinations of food, bolting or lack of exercise.

The local treatment of these cases will in no way permanently restore health to the oral cavity which was lost because of these violations of Nature's laws, until such treatment is coupled with re-education along physiological lines.

Is it to be wondered at that the peridental membrane, along with the gingival and other tissues, becomes more or less swollen, thus raising the tooth in its socket and causing so-called traumatic occlusion, when these conditions of toxaemia exist in the body? Is the treatment, with a view to bringing about a cure, that of grinding down the crown, to offset this process of the tooth being raised in its socket, so that it interferes with the opposing teeth in the opposite jaw?

I wish to express my appreciation of the interesting way the essayist has brought this subject before us.

Dr. A.J. McDonagh: Mr. Chairman and Gentlemen: I did not come prepared to discuss the paper, but I could not go away without expressing my gratitude to Dr. Bricker for the very excellent paper he gave us, one of the most scholarly and best papers I have ever heard on the subject and one which contained a great deal of meat,—in one sense.

The question of prevention is taken up by so many different societies, so many different people, and looked at from so many different ways, that I don't believe we have yet just decided how to prevent. Just a short time ago I was in Boston with Dr. Percy Howe for a few days, looking over his experiments and listening to his wise remarks and his very fine instructions, and he showed me a number of cases where decay had been caused in the teeth of his guinea pigs and in the teeth of his monkeys, and what seemed to me to be a condition of dental periclasia. Now if Dr. Howe can cause decay in the teeth of guinea pigs with a certain diet, most assuredly there is something in the diet.

A couple of days ago I was called into an office to see a patient who is sixty-two years of age, who had never used a tooth brush in his life, who had 32 teeth and not a single cavity in any one of them, and very little gingival irritation. I don't want to be interpreted as standing here to decry the use of the tooth brush, nothwithstanding that those facts seemed to say that a tooth brush is unnecessary; in our present civilization, with our present method of living, we can not get along without the tooth brush, and the method that Dr. Bricker has advocated—Dr. Charters' method—is a wonderful help in the work, not practical with every person; we cannot all use it, but for those who can use it, it is splendid.

Now to come back to Dr. Howe's investigations. I also had the opportunity of examining the work of Dr. McCollum, who is studying diet, and Dr. Clarence Grieves, who also depends upon diet, by making a demonstration of what can be caused in the mouth by certain diets. If, then, you are going to prevent disease in the mouth, we must get back to a different mode of living.

That brings me to the questionnaire I sent to a number of you, and I want to thank those who gave such splendid answers. In that questionaire distributed all through Canada, about 96% of the cases reported that where there were deep pockets, advanced dental periclasia, the patient was a worrier.

Dr. Husband spoke of worry being a cause. Formerly we did not connect worry so much as a cause, but those answers seem to indicate worry as a cause in the production of pockets. Four of the dentists in their replies stated that, after they had treated the cases of dental periclasia and cured them, as Dr. Bricker expressed it, the worrying had ceased.

Now does that not indicate that there is a connection between the nervous condition of the individual in our modern civilization and the food that we eat? I might say that Dr. Howe uses a scorbutic diet almost entirely to develop the dental periclasia; Dr. Grieves pays more attention to the balance of the calcium and phosphorus content, and in that way he studies the destruction of the mouth tissues. That man of sixty-two who had such a beautiful set of teeth asked me, "Why have I got good teeth and the rest around here have not?" I said "I would judge you were born outside of Canada?" "Yes, in Bavaria." "And you were brought up on a milk diet?" He said, "Yes, I was until I was quite old." "And at the present time," I said, "you have been trying to change over to the diet of your neighbors?" "Yes," he said, "I have."

I have, continued Dr. McDonagh, not as much faith in the placques or in their efficiency to cause decay as some have. If we can, we should remove them, we should at least try to remove them; but outside of the fact of removing the placques altogether, the exercise that is given to the soft tissues by the Charters' method of brushing, or the ordinary rotary method of brushing, is of far greater value than the removal of the placques. Nature places a certain amount of film over the teeth which I do not think it is necessary, if it is wise, to remove. And when we remove those placques, we remove all film. If you remove that placque, following Dr. Bricker's instructions, you are going to prevent the possibility of a deposit, but there is a question whether you are going to prevent dental periclasia.

I have been appointed by the American Academy of Periodontia to test whether Dr. Hartzell's announcement is true or not. He says that if you properly masticate carbohydrates, you will add ten years to your life. He says you must masticate carbo-hydrates or starches until they are digested in the mouth, until they are voluntarily swallowed. I am going to ask you some day if you will try on yourself and see what the effect will be.

Dr. Thornton: I am quite convinced that when we attempt to adjust Traumatic Occlusion we have a condition existing that is perhaps impossible to correct in advanced life. You take it when the patient is young, when life is beginning—take the Doctor's friend who lived largely on a milk diet,—I think there is a great deal there. If we had our diets a little more carefully controlled, both prenatal and after birth, we would have probably a better development, a better structure of development of the tooth tissues as well, and when the teeth are up we would have a better normal structure and better arch shape, so that when we were obliged to grind, we would have a condition existing that is perhaps not nearly so difficult to correct as at the present time. We see, I think, in very branch of dentistry at the present time, that when we attempt to make artificial restorations we are handicapped because the teeth are so badly out of position. Nature made provision to cleanse those teeth themselves, if we are careful of diet. If we were more careful on that point and in the instruction of parents, possibly we would have less trouble later.

In regard to controlling diet, it was mentioned what was done with guinea pigs, but I would draw the attention of the audience to the fact that it is easier to control the social activities of guinea pigs than it is of people. Last year you will recall that Dr. Evans, of Chicago, told us there were certain methods they had adopted over there of changing the people's methods, and I would ask Dr. Bricker if in Rochester they have devised a way of changing people's social habits?

Dr. Bricker, (answering Dr. Webster): A year ago last January I was giving a paper before the Chicago Dental Society, and Dr. Black was slated to discuss the paper. The point that I stressed was that our Dental Colleges are not putting the stress on prophylaxis that they are on restoration. I feel that if in our Dental Colleges they would take prophylaxis and preach it, and give suggestions at every lecture that prophylaxis is one of the most important points to consider, that our graduates would go out better qualified. I stated in that paper that one of the instructors from a Class A. Dental College made this remark. I asked him: "What are you doing in Preventive Dentistry in your College?" He said: "We are not doing so very much, but I realize we ought to be doing more." I asked another senior student, home for Christmas: "What have you got in Preventive Dentistry?" He said: "We have not got anything; we just clean teeth." Dr. Black was sitting in the front seat and I told him he could reply to my remarks when I got through. However, he said: "I am not going to discuss that at all, I am going to a Dental Meeting, and I will bring that matter up there."

Dr. Bricker then eulogized Dr. Webster of the Ontario College.

He continued: The great hindrance to Preventive Dentistry is through lack of knowledge and endeavor on the part of the dentist. You know you can't talk convincingly unless you know your subject. You may have a smattering of it, but you can't talk it, you can't convert your patient. Unless you talk it every day, you can't talk it when you want to.

About using the Charters' method for children: we have had a great deal of discussion about that, although I have not had as much experience among children as many men have, but we are having some experience, we are using this method in the schools of Rochester. Dr. Fones told me a few years ago: "I think that method is very good for adults, but you can't get the children to do it. I think we ought to have the rotary motion, because that is easier for children." But I remember reading a quotation on the part of a noted Divine, in a religious sense, in connection with children, where he says: "Give me a child until it is seven years old, and you can have it for the rest of its life."

I said: "A child does not brush its mouth very much anyway. It would just teach them to get the brush and use it in the mouth; that helps some." It is said 90 per cent. of the cavities in children's teeth appear on the surface. We can teach them to brush the surface. The suggestion can always be made, "On top and in between." As they grow older, we can teach them to become more efficient, but don't change the system. Brushing up and down is all right if you just want to teach a child to use a brush. But I think we ought to give them the proper method, always give the same suggestion and never change.

The Doctor said something about people remaining healthy without care. You know a fellow came up to me in Rochester, who was visiting his father who was about 65 and was very feeble. One morning he came in to see me. When I looked at his mouth and told him he had periclasia, he said: "Why should I have pyorrhea (he called it pyorrhea) when dad is 65 and has not got it, and never used a tooth brush in his mouth?" I said: "I will answer that with another question: We have an old Irishman here who says he has taken three drinks of whiskey every day, has chewed and smoked tobacco incessantly, and is eighty-four and never used a brush either. We know that thousands and thousands of people die from drinking whiskey at forty. Why is this man alive? The answer to that is: He has an awfully high resistance; no doubt he is a man who lives out of doors, takes lots of exercise, eats common food and lives as God expected us to live."

I have not had a tooth filled for eight years until six months ago, and I have been in this work going on eight years now. In eight years I have been giving my mouth the very best care that I know of, and better care than 99 per cent. of men outside of our branch of dentistry. I brush my teeth twice a day at home, and in the office from six to eight times a day, and therefore I was giving my mouth extreme care, but still I had a cavity six months ago; therefore my mouth is not immune from decay. But what would it have been if I had not been giving it the care that I gave it? I say we can prevent about 80% of periclasia—approximately 80% is the closest we can get. There was but one perfect Man, and He stayed with us only a short time.

There is no doubt, I think, that diet is the greatest subject we have to-day. But diet is not going to help matters very much at this end of life. We cannot change our diet very much, because we are pretty well set in our ways, and we all do lots of things we know are harmful, but do we all correct them? So when we begin to talk of diet, we are getting into a *regular* subject, and the time to talk diet is to the mother and then to the child.

In regard to acid formation, and why some do not have decay,—we have mouths that are immune to decay just the same as we have people who are immune to every disease—they have a high resistance. We have to keep our tissues in a high state of resistance to prevent invasion.

I believe that in mouths that have not got the high resistance, the more placque you have naturally, the more acid there is formed, more fermentation taking place, and the more location for acid forming bacteria the more virile the bacteria that grow in that mouth, and therefore more dangerous than in a clean mouth.

What are placques more than a mixture of partly digested food and saliva and anything that we take in the mouth? So why harp on this question? If you brush your mouth sufficiently often you will remove these placques before they become hard. In all mixtures the heavy parts settle to the bottom, and then this is what I say: the mucin or the sticky part of the saliva seals these heavy parts to the tooth. I tell you why I say that. I have taken many heavy parts where we have buckled surface to the teeth. I have told patients: I am not going to touch these at all until your last visit to the dentist. All I did was to brush the teeth, and remove all the buckled surface with the brush. Now I just removed the binder that holds that. So if we will just take off the binder that holds the deposit, we can easily get rid of it.

As an illustration of the effect worry had on the human teeth, Dr. Bricker related the case of a surgeon patient who could keep a bar clean with the brush unless he had a heavy operation to perform, when he had to come to his office to have removed a heavy deposit which invariably formed on that bar.

Dr. Bricker continued: The Doctor spoke of the Hartzell method. That is the Charters' method. You say you can't remove the placques with the Hartzell method. I say you can remove about 80%.

I think, in mouths that are not thoroughly stimulated, that the secretions in the gums and teeth are thicker and more mucin than in mouths where we have stimulation. We know that the heavy film which many teeth show in the morning can be removed by circulation or stimulation. We teach our patients that stimulation is the object we have in view. The more you chew, the more saliva is secreted.

The Doctor then cited a case which baffled him in connection with a patient who had been coming in to him for ten years. All at once he developed decay. It developed eventually that the man had contracted irritation of the larynx and was eating Smith's cough drops all day. "We gave him," said Dr. Bricker, "a cough syrup. and told him to rinse his mouth when he was through taking the cough syrup, and the condition disappeared immediately."

Another case of a lady puzzled him for a long time, when finally she came in with an inflamed eye one day. She said she had been having trouble with cataracts and was using atropin to try and correct the trouble without an operation. "Now, you know," said the Doctor, "atropin decreases the saliva."

Then he had another case of a man, who had an English wife who insisted on having tea and cake before going to bed. The tannic acid in the tea had decreased the flow of saliva and brought about a decaying condition. "So I think," said the Doctor, "saliva has a wonderful lot to do with decay as a neutralizer."

"You said that animals did not have periclasia. After an exhaustive investigation, it was found in a certain place that the little lap dogs were to 90% affected with periclasia—these were fed, of course, on the same food as the family; the dogs which were fed from the kitchen tables had almost as much; but the dog who was not attended to had nearly a perfect mouth.

"There are two kinds of irritants of the gum—one is a mechanical and the other is a chemical, and these are the two that the patient is concerned in."

Dr. Bricker made the statement that loooseners of the gum could be cured by stimulating the circulation of the mouth and gums.

Dr. Bricker continued: "Dr. McDonagh said many patients cannot use this method. I have not found any patients yet who cannot use this method, if they are properly instructed. I say no one knows how to brush their mouth properly unless they are shown how.

We start out by showing the patients how to brush their mouths. We never have to be worried about overbrushing, if they brush their mouths properly, because they will always stop long before they hurt themselves.

I therefore follow the method of first getting their attention, then I brush my mouth, then I brush their mouth, and repeat it at every treatment. We give six treatments on brushing the mouth. I got this idea from a very successful golf instructor who told me it took six lessons to get over to the patients what he was trying to tell them.

Traumatic Occlusion is one of the most important factors in the cause of periclasia from thirty years of age on.

Someone asked if we could control the diet of our patients. No, all we can do is to tell them and make suggestions. Every time you give a suggestion it sinks a certain depth, and the oftener it is given the deeper it will sink, and finally it will grow."

The Relation of Dental Sepsis to Other Pathological Lesions

By Sir Frank Colyer, K.B.E., F.R.C.S.

Paper read before Liverpool and District Odontological Society

Scarcely twenty years have passed since Dr. W. Hunter drew special attention to the fact that oral sepsis may be and frequently is an important factor in the development of morbid processes in other parts of the body.

Those who were in practice at that time will remember the scepticism with which Dr Hunter's views were received by the medical and dental professions generally. Fortunately, however, there were a few practitioners who, perceiving the reasonableness of Hunter's contentions, pursued inquiries on the lines which he indicated, and by careful clinical methods, aided by the use of radiograms, gradually accumulated evidence which placed beyond doubt the accuracy of his deductions.

To-day dental sepsis as a cause of ill-health is regarded as an established fact, but while recognizing this fact, we must be on our guard to place it in its correct relative position in the group of etiological factors which play a part in the production of disease.

We shall be in a more favorable position to do this if we remember that dental sepsis is not a specific disease but is a convenient term used to embrace various chronic septic infective processes about the teeth, processes which conform to the same laws which govern pathological conditions in general. To these laws I do not intend making any reference beyond directing your attention to the fact that directly tissues are threatened with infection the body mobilizes its defences which are partly local—namely, the raising of a barrier around the infected area—and partly general—namely, the setting up of certain processes to deal with the infection should it gain access to the general blood stream.

In lesions of the periodontal membrane the invasion is usually slow and the barrier efficient, at any rate in the early stages; but the defences may give way directly the general resistance of the tissues is lowered under the strain produced by some other illness or by traumatism. Then the organisms or the toxins, no longer held in check, may start pathological processes in other parts.

Before leaving this question of the defense of the tissues, I wish to dwell for a few moments on the protection of the periodontal membrane from infection. We have no very satisfactory evidence how this is accomplished. The free margin of gum may protect the dental ligament from injury during the process of mastication, and I think the gingival trough probably plays a part in warding off infection.

W. J. Penfold, working in the pathological laboratory of the Royal Dental Hospital, demonstrated that the base of the trough in healthy mouths was usually sterile. It has also been shown that the so-called salivary corpuscles have their origin from the tissues forming the gingival margin, and Mendel has shown that these cells, when present in the gingival trough, are acting as phagocytes. These facts seem to point to a machinery for keeping the trough free from organisms and preventing infection of the deeper tissues.

The work of Noyes and Dewey on the lymphatics of this region is of particular import on this question of infection. These authors have shown that the lymphatics on the inner surface of the gum margin (the surface assisting in the formation of the trough) course directly through the periodontal membrane to the apical region, there to be joined by those from the pulp; from here the lymph vessels find their way to "the mandibular and infra-orbital canals, which they leave in company with the blood vessels and nerves at the mental and infra-orbital foraminæ, emptying eventually into the deep cervical glands and sub-maxillary glands." I am particularly interested in this work of Noyes and Dewey, because it confirms a view I expressed in an early paper on periodontal disease about the paths of infection in dental sepsis. The case which drew my attention to this phase of dental sepsis was as follows:

A female, aged thirty, came under treatment one January for a general gingivitis; there was but slight recession of the gum margins; moderately deep pockets were present around the teeth and the gums bleed freely on the slightest touch. She was a mouth-breather, and beyond the fact that she occasionally suffered from indigestion there was no apparent symptom of ill-health. Local treatment was advised and faithfully carried out by the patient. In October she developed suspicions of phthisis and was treated in a home. When seen in the following June the mouth conditions were much worse and the pre-molars and molars were removed. Early in September the incisors and canines were extracted, and in one month there was a gain in weight of eight pounds; she has remained well since that time. The condition of the bone just previous to the removal of the teeth showed there was only slight bone destruction and no apparent invasion of the medulla from the sockets, the lamina dura being present. The teeth, however, were most instructive. The periosteum covering the roots appeared normal except at the apices, where there were definite signs of trouble as shown by absorption of the tissue and marked translucency of the tissues.

Here, then, we seem to have infection in the gingival trough passing direct to tissues around the apices of the teeth and an infection of sufficient intensity to cause a marked ''reaction.'' This reaction to my mind suggests that the soft tissues around the apex of the tooth may possess a protective mechanism with the view of intercepting or neutralizing the passage of infection to the blood stream—acting similarly to a lymph node but, like other defenses, breaking down when submitted to too great a strain. The relation of the defense to the attack is of paramount importance in the development of all infective processes.

With these brief introductory remarks we may now pass to a consideration of how dental sepsis causes or influences other pathological processes.

Dr. Hunter in 1906 drew attention to the fact that dental sepsis adds to the severity of an attack of scarlet fever, and other writers have shown that enlargement of the tonsil frequently decreases with the removal of carious teeth. Most larynologists are agreed that dental sepsis is responsible for many cases of chronic pharyngitis and laryngitis; the teeth most to blame are the mandibular molars, especially the third; the deep pocket which is so often present behind this tooth is a happy breeding ground for organisms, and one can frequently trace a definite track of inflamed tissue from the pocket across the pillars of the fauces. In chronic superficial glossitis we have another condition in the development of which dental sepsis plays an important part. Alcohol, syphilis, and excessive smoking have been indicted as the three main causes of this condition; to these must be added dental sepsis. I have carefully observed these cases during the last fifteen years, and feel convinced that, if the teeth are healthy, alcohol, syphilis and smoking do not alone produce that stage which is known by the term leucoplakia—an advance to this condition only occurs when dental sepsis is present. You may stop the alcohol, prescribe anti-syphilitic remedies and stop the smoking, but if you do not remove the sepsis the disease will progress and probably terminate in epithelioma. To my mind the radical removal of the sepsis is imperative. Not only do I consider that dental sepsis is an important factor in cancer of tthe tongue, but I think that it has a close causal relationship in epithelioma starting in the gums and the buccal surfaces of the cheeks, for in nearly every case one can obtain a history of long continued sepsis.

In the foregoing conditions the damage has been to the lining membrane of the mouth, but the effect of sepsis on bone also demands attention. I have seen three cases of Myeloma in which there was strong evidence that the dental sepsis was the determining cause. There is reason to think that some of the cases of so-called leontiasis ossea are in reality slow infective processes having their origin in the teeth. Support is given to this view by an examination of monkeys' skulls showing enlargement of the jaw bones—this is a subject I hope to deal with fully in a future communication.

I do not think we have given sufficient attention to septic osteitis as the cause of many cases of neuralgia met with in practice. The tendency is to look for a condition affecting the periphery of the nerve and overlook the possibility that the cause may be a direct infection of the nerve sheath. In neuralgia due to a peripheral cause, such as infection of the nerves of the pulp, the pain tends to "fly" all over the face, while in neuralgia due to infection of the sheath the pain follows the course of the nerve; a typical example is that seen in the case where the mandibular nerve is implicated in a septic osteitis in the region of the third molar; ask the patient to map out the course of the pain and he will indicate a line corresponding to the position of the nerve. We should regard this type of neuralgia with deep concern, because there is a danger of the infection spreading along the nerve sheath, and I have seen a case in which the infection, starting in the position of the left third molar, gradually involved the whole of the second and third divisions of the fifth nerve and necessitated the removal of the Gasserian ganglion.

Peter Daniel * has drawn attention to cases of dysphagia with no apparent cause. In five patients referred to him as

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*"*British Medical Journal,*" *January 5, 1920, page 121.*

cases of œsophageal cancer, repeated examinations and the passage of instruments revealed no stricture. All the patients had marked dental sepsis, and with the removal of this the symptoms entirely disappeared. I have myself seen a similar case. This condition can be explained on the lines that sphincters tend to contract when irritated, as is well shown in pyloric spasm. Now, in the œsophagus about the level of the cricoid cartilage there is a sphincter, which was first described by Sir Everard Home and more recently by Professor Keith; it is probable that in the cases mentioned by Daniel contraction of this sphincter is brought about by the presence of the dental sepsis. Time will not permit me to refer to the relation of dental sepsis to gastro-intestinal conditions, much as I should have liked to discuss its possible relation to gastric cancer.

Of the general pathological conditions attributable to dental sepsis, by far the commonest is one which is clinically designated by the term ''general debility.'' There is a feeling of ill-health, a lack of energy, tiredness at the end of the day's work, a sallow, unhealthy appearance of the skin and frequently a history of gastro-intestinal disturbance. The symptoms are indefinite. This condition must be regarded as the result of the continued absorption of small doses of toxins, and should be classed as chronic toxæmia. In a milder form the individual complains of ''being below par,'' and there are many people who become so accustomed to this condition as to regard it as normal, and it is not until after the removal of a septic focus that they realize their previous condition was abnormal.

The rapid improvement in health following the removal of dental sepsis in the child and the adult is often remarkable. Good examples of the general results following the systematic removal of septic teeth were seen at the Croydon War Hospital. It was part of the routine treatment of the patient to extract not only the teeth connected with the injured area, but also all teeth that were the source of active sepsis. The weights of the patients were kept over definite periods and it was found that notwithstanding the fact that the majority of the patients were treated with double metal cap-splints fixed—and the diet was of a fluid or papy type, 95 per cent. either retained or gained weight under treatment.

In considering the value of this test one must remember that the cases did not include those with loss of tissue requiring plastic work, but, even taking this into consideration, the results obtained are strong proof of the part played by the clean mouth in the general nutrition of the individual.

If dental sepsis can affect so profoundly the general metabolism of the body, it is self-evident that it must have a baneful influence on other pathological processes set into activity by trauma, infection or any other cause. As an example of the influence of dental sepsis on infective processes, we may take that condition known as chronic pulmonary tuberculosis. Here we have an infecting agent being resisted by the defences of the lung tissues; if the defences are strong the disease is kept in check—if weak, then the disease becomes active and spreads. Any condition, therefore, which lowers the general tissue resistance must exert an influence on the lung condition. A paper by R. C. Wingfield dealing with this subject was published in the *Lancet* (July 18, 1914). He records the results of radical dental treatment in forty-one cases treated in the tuberculosis department of St. Thomas's Hospital. In twenty cases of undoubted pulmonary tuberculosis, one-half showed distinct improvement and the other half no improvement; in twenty-one cases of doubtful pulmonary tuberculosis, fifteen showed distinct improvement. Of the cases of undoubted pulmonary tuberculosis not showing improvement, one died, three were recorded as worse and the remainder unaltered. In the one that died and in two out of the three recorded as worse, the pulmonary tuberculosis was active. I think these facts are most instructive. The bodily defences of one who has the disease in an active form are unable to hold the infecting agent in check. The effect of the removal of the teeth is to increase for a period the amount of toxins absorbed into the circulation, and this has the effect of decreasing the local resistance of the lung tissues, with the result that the disease becomes worse. It therefore seems that, in cases where the disease is active, the radical treatment of the dental sepsis should be delayed until a quiescent stage and then should be carried out very gradually.

As an example of the influence on traumatic lesions the following case may be quoted:

A young man injures his left knee at football. The usual remedial measures are tried without success and a chronic synovitis becomes established. Removal of the dental sepsis is followed by complete recovery.

There is evidence that the toxins absorbed from the mouth may in part be eliminated in the various secretions. H. Waller has shown * that failure of the infant to gain weight is frequently associated with dental sepsis in the nursing mother, and that the removal of the affected teeth has been followed by a rapid improvement in the weight of the child. Many of these children vomit the milk after the feed, a fact which points to the milk containing some toxin which the gastric mucosa will not tolerate. If the secretion of the milk can be so affected by mouth toxins it is possible, nay probable, that they may affect other secretions of the body, including those of the ductless glands. Our knowledge of the relation of the latter to other body processes is as yet in its infancy, but we do know that they are intimately associated with certain abnormal conditions—for example, acromegaly associated with increased pituitary secretion, cretinism with deficient thyroid, and exophthalmic goitre with too much thyroid. May not some of these changes in the ductless glands be due to toxic action combined with an inherited cause? I have met with one case in which the dental sepsis seemed markedly to influence the thyroid in a female with exophthalmic goitre. This patient just before her marriage developed symptoms of this disease—the condition developed rapidly and was quite unaffected by the usual treatment. There was generalized periodontal disease; this was treated in a radical manner, and from that time the patient made an uninterrupted recovery, and at the present time (twenty years after the commencement of the disease) shows scarcely any degree of exophthalmos.

**Dental Disease in Nursing Women, "Lancet," November 4. 1916*

(Concluded in August Issue)

Societies

Saskatchewan Dental Society

The Provincial Dental Convention was held in Regina on May 31st and June 1 and 2. There had been cosiderable speculation as to the result as this year we were getting only prominent men from western Canada to take the leading part. The men chosen were Drs. Merkley and Garvin of Winnipeg. The fact that some sixty men registered from all parts of the Province and that in point of numbers was the second largest convention ever held in Saskatchewan would indicate that these men have proved drawing cards. Dr. Merkerley took for his subject "Full Upper and Lower Denture," and the "Root Canal Problems" while Dr. Garvin dealt with "Anaesthesia" and "Office Management." These two men gave entire satisfaction to all present and made the convention an entire success.

Dr. C. W. Parker, the President, presided at all meetings and Dr. Weicker acted as secretary. The officers for the following year are Dr. Silknitter, Moose Jaw President; Dr. Cameron, Swift Current, Vice President; Dr. Plunkett, Moose Jaw, Secretary. The Convention will meet in Moose Jaw next year.

The convention went on record as favoring the re-establishment of the Western Canada Dental Society the Society to meet every third year in each of the prairie provinces. The idea is that the convention annually held in each province should be dispensed with in that province in which the Western Dental will meet for that year. The Western Canada Dental Society was formed in Winnipeg many years ago and had a good existence until each of the provinces felt that it had attained its majority and could hold a convention of its own. Then the provincial conventions so completely overshadowed the Western Canada that the latter ceased to exist.

Delegates Registered

Chas. W. Parker, C. H. Weicker, Grace C. Armstrong and R. Lederman, Regina; W. McDonald, Yorkton; R. J. Pennel, Prince Albert; V. Rondeau, Rouleau; F. C. Harwood, Moose Jaw; R. E. Smale, J. A. McGregor, David Barnes, R. Ross, A. F. Dyer and F. S. VanWoert, Regina; H. B. Gorrell, Minnidosa; Jas. C. Clermont, Moose Jaw; R. H. Grant, F. G. Switzer and C. Mooney, Regina; E. C. Campbell and D. J. Ferguson, Saskatoon; E. W. Mounteer, Regina; G. T. Cameron, Swift Current; W. Ibberson, P. W. Winthorpe and H. G. Carson, Saskatoon; W. H. Ross, Irwin Robb and W. F. Smith, Regina; J. Silknitter, Moose Jaw; C. C. Rowe, Regina; R. I. Hotham, Strasbourg; J. A. McConghey, Melville; G. E. H. deWitt, Regina; S. Goodman, Gravelbourg; W. G. Wallace, Lafleche; M. Anna Munroe, Davidson; T. W. Beach, Moosomin; H. R. Day, Rocanville; Harold Johnson and S. R. Martin, Moose Jaw; H. W. Dixon, Cabri; J. K. Brimmacomb, Weyburn; Cal. Bricker, Grenfell; M. R. Parkin, and S. J. Burns, Regina; J. E. Rundle, Moose Jaw; F. D. Fasken, H. M. Schwitzer, A. G. Smith, A. J. Brett and B. I. Gitterman, Regina; W. R. Watchler, Yorkton; Arthur Johnson, Moose Jaw; S. Moyer, Rosetown; F. G. Moore, Balcarras; D. J. Brass, Yorkton; L. D. Steele, Regina; J. A. Plunkett, Moose Jaw; W. H. Leitch, Regina; B. A. Dixon, and W. W. Irwin, Moose Jaw.

Ontario Dental Convention

REPORT OF NOMINATING COMMITTEE

Presented to Ontario Dental Association, Toronto, May, 1923

We, the members of the Nominating Committee, have met and beg to report as follows:

Hon. President—R. J. Sprott; President—F. J. Conboy; Vice-President—W. G. Thompson; Archivist—C. A. Kennedy; Secretary-Treasurer—J. A. Bothwell.

BOARD OF GOVERNORS: E. L. Gausby, W. L. Chalmers, C. E. Brooks, W. B. Amy, J. C. Devitt, O. S. Clappison.

Of the two new men recommended, you will note that one is from the East and one from the West.

ORAL HYGIENE COMMITTEE: F. J. Conboy, H. E. Eaton, F. C. Husband, A. W. Ellis, R. Dunlop.

ADVISORY COMMITTEE: R. G. McLaughlin, A. D. A. Mason, Wallace Seccombe, Harold Clark, R. G. McLean.

All of which is respectfully submitted.

Dr. Moore then moved the adoption of the report; seconded by Dr. Harold Clark, and unanimously carried.

American Dental Golf Association

The fourth annual tournament of the American Dental Golf Association will be held in Cleveland, Monday, September 10th, 1923.

Banquet will be held Sunday, September 9th, in "Rainbow Room," Winton Hotel.

Many events are planned, prizes donated and the usual fellowship anticipated.

Make reservation now and for any particulars communicate with J. A. Loughry, secretary-treasurer, 1311 Schofield Building, Cleveland, Ohio.

Montreal Dental Graduates

The following have passed their final examinations at Montreal University, Faculty of Dental Surgery, and are qualified to attach the letters "D.D.S." to their names.

Magna Cum Laude:—Edgar Brosseau, Henri Veilleux, Hector Dansereau, Jean Ch. Brault, P. E. Lafleche, A. Jolicoeur, and Ch. H. Houde.

Cum Laude:—Jules Thebaud, Georges Gervais, Aime Fauteux, Edouard Gervais, Herve Reny, Jean Barbeau, and Alb. Surprenant.

Pass:—R. Destroismaisons, Omer Dupuis, A. Dessault, Eng. Pelletier, Elz. Balthazar, Omer Mongrain, Charles Contant, Donat Roy, J. Coupal, C. Dawson, J. Piche, Ant. Hebert, Leo Belanger, Alc. Lefrancois, Ad. Desbiens, Ern. Forget, G. Piche, Cam. Verret and C. Chagnon.

American Association of Dental Schools

There will be a meeting of the Committee on Organization at the Hollenden Hotel, Cleveland, Ohio, Monday, September 10th at 4 p.m., for attention to the following formalities:

(a) Reading and approval of the minutes of the meetings of the Committee at Omaha, prior to formal presentation of the minutes to the Association.

(b) Formal certification of a copy of the Constitution and By-laws, for presentation to the Association.

(c) Receipt, from the Chairman of the Committee, of certificates of acceptance of membership in the Association, for presentation to the Association.

It is assumed that the proceedings of the Committee will hardly require more than fifteen minutes and that the Association will presumably convene immediately after the adjournment of the Committee.

Dentist Ninety-Nine Years Old Dies

Cleveland, which will soon become the centre of dental activities because of the American Dental Association Meeting in September has had to stop and reflect upon the life of one of its pioneer dentists who died at the age of ninety-nine years, having practiced seventy years.

Dr. William Perry Horton long known in dentistry as an energetic practitioner, and a citizen in furthering the best interests of the community was born in Pittsford, Vt., October 28th, 1823. He came to Cleveland in 1844, when the city was but eight years old, with about 10,000 inhabitants. He later attended Oberlin College, returning to Cleveland in 1851 and forming a partnership with Dr. Benjamin Strickland, who had established himself as the city's first dentist in 1835.

Dr. Horton's active practice covered a period of nearly seventy years, which, perhaps, constitutes a record.

When the Northern Ohio Dental Association was organized in 1857 Dr. Horton became a charter member of it. He took an active part in the formation of the Ohio State Dental Society, becoming the first president.

Vancouver Dental Society

At the annual meeting of the Vancouver Dental Society in the private dining room of the Hotel Grosvenor, the officers elected were: President, Dr. T. Norman Guy; vice-president, Dr. E. L. Thompson; secretary-treasurer, Dr. Gerald L. Plant (re-elected); executive, Drs. Emery C. Jones (New Westminster), O. J. Courtice, Elwood Cox, W. S. Watson and Ralph Hall, all of Vancouver.

Winnipeg Dental Society

At the annual meeting of the Winnipeg Dental Society, held in the Fort Garry Monday, the following officers were elected to the executive for the coming year: President, Dr. Arthur E. Clint; vice-president, Dr. Daniel A. McCarten; secretary-treasurer, Dr. Harold W. Mitchell; committee—Dr. B. E. Brownlee, Dr. Everet L. White.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

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Vol. XXXV TORONTO, JULY, 1923 No. 7

High Cusps versus Flat Surfaces

At the present time this subject is of especial interest because the periodontist is giving it his attention from a new angle. Each investigator of the question who adds anything of value approaches it from his own viewpoint. Black looked into the subject from an anatomic basis; Bonwell and Hanau more or less from a geometric or engineering basis; while Williams and Dewey approach it through biology and physiology.

It is interesting to note how practice has been influenced by the findings of various investigators. About twenty-five or thirty years ago, H. D. Justi and Son had tooth moulds made which were a great advance in anatomic form and color over anything previously done. Their teeth had high cusps, beautiful contours and good color. These were based more or less on the anatomic ideal. Just about the same time Bonwell's work demanded that the articulation of teeth could be made only on the basis of equilateral triangles and that such teeth must be ground to occlusion. The subject of grinding or not grinding artificial teeth was frequently discussed, one group holding that if teeth had to be ground to occlusion, it was because of want of skill to set them up. Black discovered in his own mouth that grinding teeth even in situ was desirable.

Just about this time some of the English manufacturers of teeth made moulds with flat tops serrated as horses' teeth are. This saved the dentist much time in grinding the cusps off as he had to do with Justi's teeth. Further study of the temporo-mandibular articulation pointed out that not all persons had the same inclination in the joint, nor had the same person equal inclinations on each side. It was also discovered that the articulation within certain limitations adapted itself to the arrangement and occlusion of the teeth. Patients who had worn artificial teeth for some years were often more comfortable with ill-fitting dentures than with new ones made to fit and adjusted to the condyle path by the most modern appliance made for the purpose.

Recognizing these facts, J. Leon Williams designed moulds of teeth more in harmony, both in colour and form, with the anatomic form of the patient and his pecularities of colour than any before. These teeth were known as trubyte teeth and put on the market by the Twentieth Century people.

The colour problem in porcelains and artificial teeth still not having been satisfactorily solved, the S. S. White Company have made a serious effort to improve the present colours.

Notwithstanding what has been done in anatomy, physiology and biology, the prosthodontist finds it necessary to grind teeth to form and occlusion and select shades from many sets and sometimes bake his own shades. It would seem that notwithstanding all that is known of the biology, physiology, anatomy and mechanism of human occlusion and mastication, the making and adjusting of artificial teeth so that they may be useful and harmonious is still very much of an art. The profession in this, as in many other things, is jumping from one extreme to another, often forgetting what has been known and established for years.

Operative dentistry, just like prosthetic dentistry, has been influenced into all sorts of extremes of practice. Some thirty or more years ago, Dr. Arthur introduced the idea of cutting away the proximal surfaces of teeth to protect them against dental caries. Dr. Arthur never taught that proximal contact should be lost by his method of treatment except in extreme cases, but the profession cut slices off the teeth until the dentine was extremely exposed, food wedged between the drifting of teeth occurred. Then arose a group of operators whose chief purpose was to restore normal contacts of teeth, thus preserving the interproximal tissues. With this came separating teeth for room to work and the use of the matrix to help in the insertion of amalgam and gold, so that normal contours could be restored. At this time it was not an uncommon practice to cut sharp or high cusps of teeth with a stone so that they might not sink too deeply into an antagonizing filling. In fact rough and irregular eminences of enamel were ground off to make the occlusal surface more uniform. There was no thought of restoring the natural anatomic form of the occlusal surfaces of teeth by amalgam or gold foil, much less with cements and copper amalgam which were largely used in some practices.

Orthodontists made the next move necessary. They learned that it was the influence of the lips and cheeks on the one side and the tongue on the other that directed the teeth to place until they reached the incline planes of the antagonizing teeth. They also learned that whatever influences brought teeth into normal position must continue to be exerted else they would assume a mal-position and that teeth once in mal-position tended to return unless nature's methods of retention were invoked. It was observed that the inclination of the teeth, the motion of their surface in action and the locking of the cusps and inclined planes were the best means of retention. It was obvious that teeth with large fillings in them, with perfectly plain occlusal surfaces, could not be held in normal occlusion. So Dr. J. Low Young of New York very strongly urged that not only the proximal surfaces of teeth should be restored but also the occlusal surfaces in all their detail of cusps incline planes, grooves and sulci. With the power of the orthodontists behind this teaching, it soon took on. Inlays and fillings were carved up for old and young patients alike. No matter if every natural tooth remaining had a perfectly flat occlusal surface, the new crown or filling must have an occlusal surface, not like the others but like a recently erupted tooth. No matter how old the patient, he must have young teeth. This method of practice is in line with the trubyte teeth and, like the artificial denture when it tended to knock the teeth out by traumatic occlusion, the surfaces were ground flat. In fact Stillman and McColl are now correcting the mistakes of some of the teaching of orthodontia which were erroneously applied by the operative dentist to old patients. They, with Box, believe that much of periodontal trouble comes from mal-occlusion and to treat it, set forth to grind the occlusal surfaces of practically all cases. In fact they are now in the same position as the prosthodontist who buys trubyte teeth and then grinds them flat or relatively so in the mouth until the patient can masticate without tipping them out. The periodontist finds it necessary to grind teeth fillings, crowns and inlays similarly to keep them from being tipped out.

There are many details of this subject which could well have been enlarged upon but enough has been suggested to make clear that dentistry is not all good and, as in the treatment of pulps and root canals of teeth, the patient might often have been better off to have escaped much of it.

There can be little doubt but there is a place for the high cusps and deep grooves as well as flat surfaces of artificial and natural teeth. And on the other hand the Arthur method, the full contour, the restored contact, marginal ridges, carved cusps, grooves and sulci, all have a place in operative dentistry but who will make a study of the problem and set it forth? It seems to the writer that nature gives the cue. Each case is a law unto itself and must have special study to get the best results.

Editorial Notes

A number of dentists attending the American Dental Association at Cleveland will visit Montreal on their return trip.

A dentist in Toronto was recently fined $250 for buying too much whiskey. He may still have to answer to the Board for breaking the laws of the land.

There are eighty-five dentists registered in New Brunswick.

The Montreal Gazette of April 20th, contains a splendid editorial on the benefits of dentistry.

There were about 20 candidates writing the D.D.C. examinations at Regina.

FOR SALE—Complete Dental Equipment in old established office. Price $500.00. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St Catharines, Ont.

Dominion Dental Journal

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ORIGINAL COMMUNICATIONS

Instruction in Oral Hygiene

Marjorie A. Meadows, D.N., Hamilton, Ont.

Read before the first annual meeting of the Canadian Dental Nurses Association.

Madam President, Fellow Nurses and Associates,—

It gives me very great pleasure, I assure you, to have the privilege of coming before you this afternoon on this occasion of the First Annual Convention of Dental Nurses.

I have been asked to giv a short talk on a particular phase of our work, which I have been putting into practice for some time—namely, Instruction in Oral Hygiene.

I should like to tell in a few words how I came to attempt this work. Before entering my present profession, I used to teach Physical Culture in the Recreation Centres of this city, (Toronto), for several years. During the ten-minute rest period I was in the habit of giving a little talk on Health.

Even before being actively interested in the Dental profession, I had observed the following few facts, time and again. The children with sound teeth and healthy mouths—

1. Had much better coloring and firmer flesh.
2. Had happier dispositions.
3. Their breathing capacity was much deeper—hence greater endurance in all games and gymnastics.
4. Were brighter in every way—a pleasure to instruct.

On the other hand, those with dirty mouths, and foul breath, were pale, unhealthy-looking, backward and self-conscious. This last due, I suppose to being repeatedly shunned, directly or indirectly, by their more favored companions. Indeed, I have often been told, with the frankness of children, something to this effect—"I don't want to be Mary Jones' partner—she never cleans her teeth and her breath is awful!"

It was these facts which first interested me so intensely in

Dentistry. While I was taking my Course, I still continued my classes in gymnasium work at night. My health talks were now concentrated on the teeth and their care.

Before long, the teachers of the school were saying to me, "However have you obtained the results you have with our pupils? You've done something that we have never been able to do. Why, the children come to school every morning now and say, 'Look at my teeth, teacher, aren't they clean?' etc., etc., And they listen to the Hygiene classes as they never did before."

Well, this was most gratifying. I attributed the results first, to the fact that I myself was, of course, much more interested in the subject than the teachers, who already have an over-crowded curriculum, and was thus able to impress the children more: and second, to the fact that the children received the instructions outside the classroom, were not expecting to be tested on their knowledge of it, and thus the information sunk in in the way conversation does, usually leaving a more lasting impression.

Later on, when I was putting in my few days at the school clinics I had the opportunity to observe still more facts. The children came in one by one, with scared eyes and beating hearts. Even the most delightful of dentists could not soothe their fears by his gentle touch and re-assuring words. It was when the nurse smiled at the child, and held his hand, that his nerves relaxed, and he ventured a smile in return.

Then, in answer to some of the questions put by the dentist as to why his teeth were not kept cleaner, the answer would be —"My mother won't let me use her brush any more," or "John lost our brush in the backyard," and so on.

With all the Health Education propaganda of the present day, someone has failed to "put across" emphatically enough, the crime of using another's brush, and the absolute imperativeness of mouth-cleanliness.

I do not in any way wish to appear to be criticising the School Dental Clinics. There is no work being done that is more important, or that is getting better results. But I do advocate that a Graduate Dental Nurse be placed in every district, who shall interview every child first, before he goes into the examining room, and give him a short talk on oral cleanliness, the necessity of it, and the only proper way to clean the teeth.

It would be impossible for the dentists themselves to do this work of instruction—they have neither the patience nor the time. And it is one form of the work for which a nurse is particularly adapted.

The dentist with whom I worked when I first graduated, was delighted when I approached him on the subject of giving proper instructions to the patients. He said that he would leave the matter entirely in my hands, and to go ahead and plan how to do it. I had intended talking to the children only, but he said to include everybody.

I started off with a few misgivings so far as the adults were concerned. I thought that they would consider it presumption to be told how to care for their mouth after having been at the good work many more years than I was old. However, the results were so remarkable, and the appreciation so real, that I gained all the assurance I needed, in no time.

This work can be done in a dozen different ways. In fact it could not be done the same in any two offices. It would have to be adapted to fit the particular routine and arrangement of each office.

This is the way it is done in ours. When a child makes his initial trip to the office, he is first seen by the nurse in the examining room. To begin with, it is the nurse's object to gain the child's confidence. There are no rules for this. It depends on the personality of the child, of course, and each child must be approached differently.

The book that we find most invaluable as an aid in this work is a Health Reader, ''The Child's Book of the Teeth'' by Ferguson. This book, although written in simple style, is complete in every detail, and the very simplicity, together with the clever illustrations, serve to hold the child's interest on every page.

We go through this small book, page by page, I explaining the pictures, and answering the dozen and one questions which crop up. When the last page is turned, the child is completely won over. He wants to know more. He can hardly wait until he gets home, to get his brush in his hand.

Now is the crucial moment for a practical demonstration. So, out of a drawer is taken a Typodent and the several sized Hutax brushes. The one suitable to the patient's size is selected, and I go over all the celluloid teeth very slowly and carefully, explaining each step. Then I hand both to the child and have him do what I did. He repeats this as long as I think necessary, until he has the movements correct. I praise him, and he is delighted. With this good, self-satisfied feeling, it is no ordeal now for him to go into the next operating-room and see the dentist. His confidence has been gained, he has lost his fear, and he knows, first-hand, how to keep tooth-ache away, so that he need not be afraid to return.

As additional aids, besides the Ferguson book, I use various pamphlets and posters which are issued by the Child Health Association, and the National Child Welfare, as I think suitable at the time. The literature obtainable from both these associations is practically limitless, and is in the most attractive form possible.

The smaller children are usually accompanied by a parent. This is a good opportunity to give instruction to both. In every case, the parent is most appreciative of this service to her child, and, as a result, goes away with warm words of recommendation in her heart, ready to be spread abroad.

Sometimes, I find it a good plan to take several children of an age together in a group. The competitive spirit is thus aroused, which is most desirable and brings better results along almost any line.

If I am not satisfied with the results, at a subsequent visit, I have the child make a special appointment with me, and bring his brush. There is no further trouble after this.

We have the children return at regular, close intervals, so that I can examine their teeth and gums, and see that they are keeping up the good work. I must say, that there is very little back-sliding. On the other hand, as the weeks go by, the results are most gratifying, and well worth the extra time spent. The child looks better, feels better, and has a great deal more self-respect and confidence.

When I see the necessity for it, an appointment is made with the doctor for a thorough prophylactic treatment.

Will we ever get Oral Hygienists in Canada? If only I had the license to clean teeth, especially in our office, where perhaps an extra number of prophylactic treatments are given a week, think how much extra time the doctor would have to put on more remunerative work. I feel, too, that a nurse, if properly trained to do prophylactic work, could do it better than the dentist. She would have the patience and the time to spend on it, and would devote the same particular care to it, that she gives to her own toilet.

The young people and grown-ups are approached in a different manner, of course. After leading up to the subject in whatever way I think best, I produce the typodent and brushes and give them the same demonstration. Added to this, however, I encourage the use of dental floss, not forgetting to warn of the dangerous effects of its abuse, recommend a certain paste, and in most cases, a mouth-wash. We recommend Hutax brushes exclusively, and emphasize the necessity of the Lingual one.

These Patients are also all put on a list and recalled in three, four or six months, as the doctor thinks necessary.

With the adult patients, while giving instructions, a few words on proper diet can be woven in. This is a subject which is intensely interesting to almost everybody these days, and many discussions of the subject ensue. Thus, another service is rendered the patient. However, that is a different story.

In closing, may I recommend that every nurse contrive to start this good work in some form or other, no matter with how small beginnings. I should like every dentist and nurse to see for themselves just what excellent results can be obtained, and how much easier children's work can be done.

The sooner we all render this Primary service of the profession to which we are attached, the sooner will Dentistry reach the great objective for which it stands—Prevention.

General Dental Office Management

Irene Bate

In dealing with such a subject as Office Management, it appears to me that the most effective method is to give some practical suggestions which may appeal as providing easy methods and short cuts calculated to assist a dental assistant in giving the most efficient service in the discharge of her duties.

Punctuality is one of the most essential virtues and the dental nurse should make a point of arriving at the office at least thirty minutes before the doctor. It may well be that upon this half-hour depends the success of the whole day. The assistant who arrives only ten minutes before the doctor will not have her office running one-half as well as the one who arrives earlier.

The first duty on arriving should be to open the windows. A dental office, above all others, must be well ventilated. If the weather be cold, it will be sufficient just to change the air, and it is also desirable to do this between patients, whenever possible. The next step is to see that the water, electricity and various heaters are turned on. While the water is heating, the nurse changes into her uniform. Then comes a general cleaning. All brass and nickel work must be polished, the sterilizer scrubbed on the inside and polished outside, instruments placed in their proper places, linen arranged for the day and a general dusting done.

A very important subject on which a few words may be helpful is that of the sterilization and care of instruments. All instruments should be cleaned or polished at least once a day with Bon Ami or by the lathe and tripoli. Either method will be found satisfactory but any material more gritty than Bon Ami should never be used on instruments as it scratches the metal. In fact nothing very gritty should be applied even to basins or marble tops as it will remove the natural gloss. The water put in the sterilizer should be either distilled or boiled as no cakey formation is found when such water is used. A small amount of bicarbonate of soda added with the instruments is effective in preventing rust. In sterilizing burrs, one should first see that they are perfectly clean. The most effective means of securing this is by the use of a wire wheeled brush on the lathe. Then to sterilize, drop and leave for at least fifteen minutes in an antiseptic solution such as 50 per cent lysol.

A very valuable part of the dental nurse's duties is connected with chair side assistance. Every office seems to have its own system for this branch of the work and so each individual nurse learns how the dentist likes his cements, amalgams and silicates mixed. In working with silicate, the nurse should never forget the cement cavity lining. It helps the dentist greatly. If the cement is not mixed first, the silicate becomes too hard for working and another mix is necessary. Then if an instrument has to be used more than once, care should be taken lest the filling harden and stick to it. It is very desirable that the blade be wiped off immediately with a cool, damp cloth, and dried, leaving ready for use on the tray.

Perhaps the most important factor in the relation of the dental nurse to her employer is her tact in handling patients, as very much of his success will depend upon her methods. In speaking to patients over the telephone, for instance, it is always desirable to talk as if the patient were actually at the desk discussing an appointment or some such matter. It will be found that the conversation is much more satisfactory to the patient as well as to the nurse. When Mrs. Jones calls and assumes that of course the nurse remembers her and every detail of her case, the latter must not in any way allow a suspicion that the assumption is not entirely correct. The recollection of some incident connected with previous visits will give an assurance that Mrs. Jones was quite an important patient and of course had not been forgotten.

It sometimes happens that the dentist has a patient that is very difficult to work with and in fact such a patient may become so trying that the doctor actually dreads to meet the appointment. In such cases, the nurse can be very helpful as she should try to counteract the bad impression that may be created and, instead of reflecting her employer's mood, give special attention to the patient.

Every day nervous, excitable people come into dental offices and many of them think that their cases are very exceptional. The nurse's cue is to adopt a cheerful tone and assure them that such cases, while undoubtedly requiring most skilled treatment, are not unusual and are to be met with every day. The dental nurse should always be loyal to her office. This, of course, is instinctive, and in nearly all cases, it will be found that the nurse considers that the dentistry done in the office in which she is employed is model work.

The way of a dental assistant is not all sunshine, but if the words of Phillip Brooks were nailed above each desk, the paths of toil might be made much easier.

Do not pray for easy lives,
Pray to be stronger men,
Do not pray for tasks equal to your powers
Pray for power equal to your tasks.

The First Annual Dental Nurses' Alumnae Conference

The first Annual Dental Nurses Alumnae Conference was held on May 15th and 16th, at the King Edward Hotel, Toronto. It exceeded the most sanguine expectations of those interested as to attendance and ability displayed. The registration showed 105 Oral Assistants in attendance. The venture of holding a Convention of Dental Nurses more than justified itself in the enthusiasm of the nurses themselves and the manifest interest of the Dentists in attendance. That such an enterprise in so young an organization should prove successful, shows that the Association is keeping up with the times.

The Alumnae was greatly honoured in having Dr. R. J. Sprott, President of the Ontario Dental Association, whose opening address proved an inspiration to those present. Following Dr. Sprott's address the President of the Dental Nurses' Association, Miss Grace Goodchild, D.N., in a felicitous speech made the following remarks:

''It gives me great pleasure on behalf of the Dental Nurses' Alumnae Association to extend a hearty welcome to our guests, graduates and fellow members to our first Convention.

''Our Alumnae was organized for the purpose of uniting Course given at the Royal College of Dental Surgeons, started in the year 1919. The Constitution was drawn up, and the Association organized in 1921.

''Our Alumnae was organized for the purpose of uniting professionally and socially, the graduate dental nurses of Canada and to act as a representative body to deal with all matters in the interest of the profession of dental nursing. In order to accomplish this end we have been holding monthly meetings and from time to time have had many doctors speak to us on interesting and beneficial subjects.

''Socially we have been most active, indulging in dances, teas and many parties. Though I may add that we have not been entirely selfish through our various entertainments for they have enabled us to do some charitable work which we hope to increase in the future.

''I take this opportunity of expressing our appreciation of the interest shown by the Ontario Dental Society in inviting us to be a part of this meeting and we hope that our efforts will be worthy of the confidence the Society has placed in us.

''With this privilege comes a responsibility to every member individually, to promote the interests of dental nursing. This is a big step in our history, and every nurse must feel the responsibility and live up to it.

''It means that we are being recognized more than ever before and we hope that the Canadian Dental Association will likewise, at some future time, give the dental nurses an opportunity of joining with them in a similar relationship. As retiring President I desire now to publicly express my gratitude for the help and co-operation given by the Committee in charge of the programme.

"The unity and purpose of this organization is plainly evident by the programme and I trust will meet with your approval."

Then Miss D. E. Robb gave a paper on the Oral Surgeon's Assistant, as follows:

Madame President, Dr. Sprott, Dr. Conboy, and co-workers. It is with great trepidation, I assure you, that I presume too speak to you for a short time to-day upon the branch of work which has fallen to my lot. I say this truthfully, for if there was one part of the course at the Dental College that I disliked it was the Exodontia. True, I came with all the youthful illusions of comforting those who were called upon to suffer, but the very sight of a pair of forceps gave an unwonted speed to my heels which never stopped to think of the unfortunate patient, so that you can see that I have come a long way since then as it is nearly two years since I first entered the office of an Exodontist, and can now say truthfully that I find it more interesting than any other branch of Dentistry.

We have been taught Loyalty—Loyalty to our profession, Loyalty to our patients, and Loyalty to our Dentist and it is there that we find the keynote to success. However, there are a few things that are essential, the first being a practical knowledge of cleanliness and sterilization in order that the office present an appearance of sanitation to the patients upon their initial arrival. Then it is necessary to develop a delicacy of touch in the handling of instruments and forceps. Chisels, lancets should be kept sharp, syringes sterile, and forceps oiled. Also, the Dental Nurse should have a general knowledge of the drugs and agents and their use about the office. Mistakes will be eliminated if care is exercised to look twice at the label and smell the cork before pouring the contents of the bottle.

The value of an assistant is in proportion to her ability to anticipate the requirements of the operator. Efficiency in this can only be gained by working with the same operator, as no two employ the same technique.

It is agreed that the telephone has been a marvellous invention but there are times when the incessant ringing of the bell tries the nerves of the operator while engaged in a delicate operation. At such times messages should be taken by the Dental Nurse, both from the telephone and the reception-room, and dealt with diplomatically.

Just here, I would like to say a word or two about the personality of the Dental Nurse in dealing with and handling patients. That she be pleasant, tactful, and sympathetic, keeping the conversation in cheerful channels. Of course, gossip and idle talk is dangerous, but there are times when a patient comes with some complaint either real or imaginary, and they should be given chance to tell it. Perhaps they have had heart trouble or have had difficulty in preventing hemorrhage on former occasions, so that they should be given a sympathetic hearing although it is the duty of the Dental Nurse to keep the conversation short and concise.

Nor should her kindness toward the patient cease with the conclusion of the operation, for it is then that little attentions are most appreciated.

Also if the Dental Nurse can train her mind to remember names and faces she will be more than repaid for the effort on her part by the appreciation of the patient upon their return.

Another requisite to success is the faculty of being able to keep several things on her mind at the same time. This need not interfere with the assistance necessary to the operator, and if developed will prove a great time saver. Memo pads are a great help to the memory in this regard.

I have said nothing about the detail work which is part of every office. For no matter how good the janitor service is there is certain cleaning necessary which has to be done by the nurse. Ordinary supplies should be ordered and replaced without the knowledge of the operator. There is no rule in regard to cotton dressings as no two offices use the same kind of supplies, and these have to be made whenever time permits.

In closing let me emphasize again the duty of the nurse to remain loyal to the dentist with whom she is associated. And though her feet are sometimes weary after the tiresome day, let her remember that to serve is noble and that

> ‘‘Life is not an idle ore,
> But iron dug from central gloom
> And heated hot with burning fears
> And dipped in baths of hissing tears

And battered with the shocks of doom
To shape and use." ,

Following this, Miss I. Bate's paper on General Office Management proved of practical interest to all.

Then the afternoon session with a very instructive table-talk on Oral Hygiene by Miss M. Meadows.

The following morning was given over to a demonstration on the Care and Use of Office Equipment given by Mr. W. McTavish and assisted by Mr. F. Woodward.

The complimentary luncheon given by the Ontario Dental Association to the Dental Nurses was much appreciated by the Alumnae. The afternoon was devoted to a series of clinics which were conducted by the graduate nurses. Miss G. Lewis was in charge of "Records," while Miss E. Sherwood and Miss M. Reid showed efficient methods in "Radiography." "The Value of the Nurse in Chairside Assistance" was demonstrated in the two clinics by Dr. A. E. Webster and Miss G. Goodchild, and by Dr. A. Day and Miss F. Maitland.

Miss Beth Arnott and Miss M. Malaney displayed fine technique in their clinics on "Investing Gold Inlays" and "Full Denture, Partial and Repair."

Prevention of Post Operative Pain

D. W. Gullett, D.D.S.

Our age is essentially one of prevention. As far in the distant past as history carries us, we find men interested in the cure of diseases and ailments of mankind. Not until late years has the prevention of these same conditions been the subject of study. The time cannot be far distant, when the patient will ask, "Why was I not prevented from having this trouble?" instead of the question of ages past, "Can I be cured?" We who are young in our profession must keep this in mind. It simply means that diagnosis must come before the disturbing factor presents itself. Anybody can tell that his jaw is paining after the pain has begun.

Coincident with the development of X-ray utilization, and recognition of the culpability of dental and oral lesions in production of general diseases came a numerical increase in the extraction of teeth, with an increased ratio of post-operative conditions, chief among which is prolonged severe pain.

The condition is annoying to say the least. The patient had the tooth extracted to relieve his pain; then to be inflicted with greater pain is rather distressing to him. The operator, in many cases, is at a loss to know what to do. For this reason every dentist consulted will give a different treatment, many recommending drug preparations, all of which may assist in lessening, but do not control the post-operative pain. For a complaint which is so prevalent, one is surprised at the scarcity of literature on the subject.

By the extraction of one tooth a wound is made, which would not be left unattended in any other part of the body. In other words, a gateway for the entrance of bacteria is opened up to the whole system. When the source of infection which this wound has, is considered, are we not surprised that even more septic conditions do not follow extraction? An operator surely should not fail to treat such a wound in the the best possible manner.

Prophylaxis is a point, which should be first in every operator's mind, before he begins. It is not meant that the thorough process of prophylaxis, as we understand it in dentistry, be carried out. What is needed is, that the mouth be cleansed as nearly as possible, and debris removed, and a general cleaning up of the whole dentition. This is easily accomplished by the use of an antiseptic mouth wash, and one of the brushes which are used in the "clean-up" some men do. The brushes can perhaps be excused here. This is the first step in prevention of post-operative pain. Every case requires it. No surgeon would begin his slightest operation without pre-antiseptic measures. Why should you?

Over-emphasis can not be placed upon the examination of the case. This is constantly neglected. It is much to the chagrin of the operator, when he finds that the wrong tooth has been extracted. A plan of action must be fixed in every operator's mind, before he begins. He must know what is to be done, and how it is to be done in the most beneficial manner. The man who does not do this, is unfair to his patient. Unnecessary operative trauma is a great cause of after pain, and is due to the fact, that sufficient reasoning was not used, in the vast majority of cases, before beginning the operation. Following the removal of the tooth, the examination must include, thorough surveillance of the tooth itself, the socket, and the adjacent teeth.

Having never been able to find a classification of the various conditions following extraction, we should be at liberty to formulate our own. They may be classified as follows; (a) Simple (b) Compound (c) Complicated. By simple is meant, the condition found following the extraction of a tooth which has to no degree involved the surrounding tissues. By compound is meant, the involvement of the gingiva or gum tissues. By compound is meant, the involvement of the gum tissue, alveolar process, and any other surrounding structures of the neighborhood.

(a) Simple Cases are treated as follows,—

1. Immediately following the operation, flush the socket with an antiseptic solution to remove debris that may be present.

2. Have patient flush out whole mouth thoroughly, but guard against the use of suction by means of tongue or cheek in the socket.

3. Allow clot to form in socket. See that the clot does form. Warn patient not to disturb clot.

4. Prescribe an antiseptic solution, for patient's own use, that is write a prescription for one. Many men treat antiseptic solutions for mouth use with disfavor, their theory being well based on the fact, that any solution which would be

of benefit as far as bacteria are concerned would cause death of the tissue as well. Even fully recognizing this, all must surely agree that the mouth should be freely rinsed out several times after the operation. Something must be used, and why not make it antiseptic? The patient would not use plain water, but will always use a prescribed remedy. If only for the psychological effect of the coloured solution, it is most certainly worth while. It is thought that the frequent use of a mild solution is better than the occasional use of a strong solution.

5. Instruct patient to inform you immediately, if any trouble arises.

(b) Compound Cases are treated as follows,—

1. If the lesion is small, and not of much consequence the treatment, as in simple cases, is sufficient. Further treatment, to a great extent, depends upon the extent of the injury. Where the immediate edges of the gingiva, surrounding the socket, are jagged, or torn slightly, they may be trimmed carefully by means of curved scissors. When large tears or flaps of gingiva or gum tissue have been made, they may sometimes be carefully re-placed, when they will remain satisfactorily. Often though, these will tend to separate when approximated, and sutures are a necessity in order to retain the tissues in position.

2. Prescribe a mouth wash. In the latter cases, mentioned above, make an appointment for the second or third following day.

3. When the patient returns, remove the gangrenous areas. Notice if granulation tissue is forming, if not, it should be stimulated. If sutures have been inserted, remove them.

(c). Complicated Cases are treated as follows,—

1. The complication which is most frequently met is the fracture of the alveolar process, which may be divided according to degree or extent,—

(i). Loose Spiculae,—

Often these are left with no attempt of removal. They prove a source of irritation. The socket, either fails to heal on account of their presence, or heals enclosing the spiculae. Weeks later, perhaps it may be when a denture has been inserted, a spicule of bone is found coming through the tissue, and acting as an irritant to the patient. These must be removed at the time of operation. They may be washed out by means of syringe, or picked out with suitable pliers. If they are attached to the gingival, carefully dissect them away.

(ii). Sharp or Irregular Margin of Socket—

It seems most appropriate to say just here, as one so often hears, "that Nature will round them off." While this is slowly occurring, the sharp edges are constantly proving irritating, and annoying to the patient. It is surprising how long a rough sharp edge of a socket will remain as a source of pain. Nature can be aided greatly by the use of bone forceps, and pain is lessened.

(iii). Fractured Margin or Septum—

It is distressing to the operator to fracture a large portion of the process. When the fractured part comes away attached to the extracted tooth, trim the edges of the process. If the fractured portion of the process is left, it is advisable to dissect it away, and remove it. Where the septum has been partially dislodged, it seems best to carefully press it back into place, to protect the adjoining tooth which remains.

2. As in previous treatments, prescribe a mouth wash. If necessary, arrange for a susequent sitting. Always, however, tell patient to inform you of any trouble which may arise, so that you may be able to relieve him of his distress.

Another condition which gives rise to severe pain after extraction is known as "dry socket." This after effect can be avoided. There is but one condition, where this will be encountered, that is where the pulp has been dead for some years. Vital teeth, when extracted, never have "dry socket" conditions. Knowing this fact, when such a tooth is extracted, the socket should be carefully examined for the formation of a clot. If none forms, the socket should be curetted well, and clot formation should be obtained, before the patient leaves the office.

Rarely can it be said that after-pain is due to the anaesthetic used. Thoma says, "After-pain is in most cases due to the operation proper, and not to the anaesthetic, which can be demonstrated in conduction anaesthesia, where the injection is made in a place remote from the field of operation, or in anaesthesia for operations on hard tooth substances, performed with proper care so that the pulp has not been injured."

It would be an endless task to list the drugs recommended by various men, to place in the socket after extraction for the relief of pain. The way in which many of these drugs act to reduce the causes of after-pain, rather than attempting to do away with the pain after it has been produced? No drug can do more than lessen the pain which is already present.

Dressings are both good and bad. If drainage is required, following the operation, dressings are often used to good advantage. In many cases though, when dressings are used, they are placed in so securely that the pressure of the dressing causes more pain and after trouble than would be caused without them. The great majority of expert exodontists practically never use a dressing.

In conclusion, the ideas here so poorly expressed could be summarized by saying that good judgment and carefulness, in both operating and immediate after treatment, would do away entirely with the vast majority of post-operative pain cases. The treatment is so simple that dentists neglect to do it at all. In a large majority of cases, no after trouble arises, so it is considered useless to follow any definite technic for each case. However, it should be the constant aim of every dentist to thoroughly and completely do his work. When he does not guard against post-operative pain, by every means at his command, he is not doing so.

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The Relation of Dental Sepsis to Other Pathological Lesions

By Sir Frank Colyer, K.B.E., F.R.C.S.

(Concluded from Page 262)

Much has been written upon the relation of dental sepsis to the joint affections grouped under the term "arthritis deformans." I propose to deal in some detail with these conditions because they afford an instance of the difficulty there is at times in assessing the degree of damage due to dental sepsis.

In the form usually known as polyarthritis the onset may be rapid and the disease may pass into a chronic stage, or the condition may be slow in onset and progressive. In this disease the peri-articular tissues are the first to be involved, the cartilages being implicated in the later stages. The disease usually attacks the joints of the hand and foot—the individuals affected are generally under forty years of age, and although more common in women than in men, it is about equally distributed in boys and girls.

It is generally conceded that polyarthritis is bacterial in origin, and Horder considers the infecting organism is either the S. salvarius or the S. fœcalis—both organisms of low virulence.

There is ample evidence that the source of infection is often from the teeth, the rapid improvement and eventual cure in some cases being most striking. For example, a married woman, aged thirty, hobbled into my out-patient department in 1911, having an arthritis involving several of the joints. The teeth remaining $\begin{array}{cccccccc} & 3 & 2 & 1 & 1 & 2 & 3 & \\ 4 & 3 & 2 & 1 & 1 & 2 & 3 & 4 \end{array}$ were loose. Radiograms showed extensive destruction of the bone and absorption of the roots of the teeth. As far as could be ascertained there were no other sources of sepsis. The teeth were extracted, and recovery followed. I have recently heard from this patient; she has remained quite well, and has not had any return whatever of the arthritis. In this case it is evident that the infection arose from the teeth.

In many patients there are other sources of infection, and in these cases it is extremely difficult to express a definite opinion upon the relation of the dental sepsis to the arthritic condition. The following is an example: Three years since a man aged about forty-two years was sent to me with arthritis attacking the joints of the hands and feet. He had periodontal disease, but there was a fair degree of reparative power in the alveolar process; he was a mouth breather—there was an old tonsillar trouble in addition to symptoms of gastro-intestinal disturbance. Here we have periodontal disease in a large measure attributable to the mouth breathing; the tonsillar condition is increased by the dental sepsis and a vicious circle is formed. The combined dental and tonsillar sepsis aggravate the gastro-intestinal condition, and this in turn affects the general metabolism, including that of the teeth and tonsils, and vicious circle number two is formed. Under such conditions it is impossible with our present knowledge to state whether the dental sepsis is or is not the primary cause—but the balance of evidence is rather against than for. Nevertheless, radical treatment of the dental sepsis is necessary before the tonsillar or gastro-intestinal conditions can be dealt with and the patient freed of his sepsis. The teeth were removed a few at a time, and after each operation there was a fair degree of reaction in the joints, but little improvement. Removal of the tonsils failed materially to affect the condition, and it was not until a regular course of treatment for the gastro-intestinal condition was carried out that the patient made any headway. To-day his disease is checked, and there is considerable improvement in the power to use his limbs. In this case the dental sepsis can only be regarded as a contributing cause by influencing the degree of gastro-intestinal sepsis.

In many cases there is a definite family history of rheumatism, which, after discounting the possibility of similarity of environment, suggests some germinal variation. In these patients the joint condition is due to a combination of intrinsic and extrinsic causes, and although it is imperative to free the individual of sepsis, permanent relief can hardly be expected because other sources of sepsis may light up the condition.

In osteo-arthritis we have a condition the pathology of which is still obscure. By some authorities the joint changes are considered to be degenerative in type, while others maintain they are of bacterial origin. In these cases, even if periodontal trouble is present, it is of the chronic type, and the radiograms of the alveolar process usually show definite sclerosis of the lamina dura, pointing to ample reaction to any toxins affecting the periodontal membrane. I have seen many cases of this type, and there is to my mind no evidence for the assumption that the mouth condition is the etiological factor.

There is ample evidence that dental sepsis influences the course and development of many cases of nervous and mental disorders. The condition we meet with most frequently in practice is that labelled as "nervous breakdown." In most cases there is a history of an undue mental strain and the failure of prolonged rest to effect an improvement. The removal of dental sepsis, if present, is, however, followed by a rapid recovery. In these cases the sepsis weakens the resistance to the mental strain, and is a contributing factor, but not the cause; if the individual had not been subjected to the mental strain the sepsis by itself would not have produced the nervous breakdown.

This question of the relation of oral infections to mental conditions demands our most careful consideration. In the *Journal of Dental Research,* September, 1919, there is a paper by Dr. H. A. Cotton, in which he states that a marked improvement in mental diseases often follows the radical removal of sepsis, be it in the teeth, tonsils, or the intestines. The type of case to which he especially refers is that belonging to the dementia precox group, and he states that in 25 per cent. of his cases the teeth were the etiological factor; in another 25 per cent. the teeth and tonsils, and in the remaining 50 per cent. the gastro-intestinal canal was involved. Dr. Cotton is, I think, inclined to place too much importance on the sepsis as an etiological factor, and underrates the part played by heredity—indeed, he states that it had very little influence in the etiology or in the *prognosis* of mental diseases; in other words, he would have us believe that the sepsis alone is responsible, and that therefore with its removal a cure is effected and the prognosis good as far as the mental condition is concerned. I have read the paper with some care, and have come to the conclusion that the author has not produced sufficient evidence to warrant his deductions.

We cannot ignore the considered opinion of such a distinguished neurologist as Sir Frederick Mott, who emphasizes the importance of inborn factors in the production of neuroses and psychoses, and certain degenerative conditions of the nervous system which have been designated under the collective term of atrophies. The nature of this inborn factor we do not know. It is probably a feeble resistance of the nerve cells to the action of certain toxins, and amongst these toxins we must include those of dental sepsis. The point I wish to stress is that the nerve condition in the majority of cases cannot be produced by the dental sepsis alone—the inborn factor must be present. This is a totally different point of view from that expressed by Dr. Cotton.

Since the middle of the last century diseased teeth have been recognized as a source of eye lesions. To the old writers bacteria and their toxins were unknown, and the eye lesions were considered to be due to neuroses. It is indeed interesting to read Von Stellwag as quoted by Wedl on this subject. He says: "It is a well-known fact that it is by no means an uncommon occurrence for intense irritation of one or other division of the trifacial nerve to lead to hyperæsthesia, and later to hyperæmia and inflammation in the territory of the ciliary nerves"—and again, "Hyperæsthesia of the ciliary nerves may also be induced by exfoliation of an alveolar process, abscesses on the roots of a tooth, and the impaction of foreign bodies on an alveolus."

To-day this relation between dental and ocular disease is established beyond all cavil, only in place of reflex irritation we read bacteria and their toxins. Lang considers that dental sepsis is by far the commonest cause of eye lesions attributable to sepsis; in his opinion the uveal tract is the part most usually affected, but the sclerotic, the choroid, and the retina may all be affected.

There are no doubt many in this room who could recount cases in which eye lesions have rapidly cleared up with the removal of the dental sepsis. It is a clinical fact, but the exact pathology of these eye lesions is still obscure. I have discussed the question with my ophthalmic colleagues, and the majority would seem to favor a toxic origin; on the other hand, there are those who insist on an infective origin. Dr. A. W. Ormond (*British Medical Journal,* October 19, 1912, page 1021), for example, expresses the opinion that there is no evidence that toxins alone are capable of producing a localized inflammation of the uvea, and he considers that all intractable cases of iritis and iridocyelitis are due to the presence of micro-organisms of the uveal tissue, and that the pathological changes produced are the result of their presence there.

In the conditions so far described the damage by the dental sepsis has been caused either by the action of toxins or by an infection of very mild intensity. Now, organisms, even though acting as saprophytes, have an unfortunate habit of suddenly acquiring a high degree of virulence, and herein lies one of the potential dangers of septic foci in the mouth.

F. St. J. Steadman * has recorded a most instructive case:

"A powerfully built man, in apparently robust health, about forty years of age, was one day stepping off the curbstone into the street, when he suddenly became aware of a motor 'bus bearing down rapidly upon him. He sprang sharply back on the curb, and in doing so slightly sprained his left knee. The injury was so slight that he thought very little about it, and continued his usual occupation for that day. Three or four days later, however, he was admitted to Charing Cross Hospital, under the care of the late Dr. Montague Murray, suffering from acute suppurative synovitis of his knee-joint. He was transferred to the surgical side. The interesting point in the case is whence had come the infection? At the time of the accident his leg was not knocked in any way; there was no external injury, therefore, of any kind whatsoever. Dr. Montague Murray made a thorough examination of his whole body, and could find no focus of infection. He then asked me to examine his mouth, whereupon the source of the infection was immediately seen. He had a very advanced pyorrhea alveolaris; his mouth was in a filthy condition, with 'deep pockets streaming with pus round all his teeth.' The explanation given by Dr. Murray was that the 'strain' had injured some tissue cells in the immediate neighborhood of the joint, and so lowered their vitality and resistance to invasion by micro-organisms. Consequently, the micro-organisms floating in the blood stream from his oral sepsis gained a foothold, with the disastrous result that followed."

In ulcerative endocarditis there is evidence that the source of infection may be from the teeth. Pickerill record a case where the S. salivarius was present post mortem in the bronchi, the alveoli of the lungs, and in the valves of the heart, and in another case, recorded by H. Hemsted, the streptococcus obtained from the blood had the same characteristics as the S. calivarius.

**Trans' 17th. International Congress of Medicine, Section Stomatology, Part 2, page 146.*

In intermittent fever and that condition classified in army history sheets as P.U.O. (Pyrexia of unknown origin), the teeth are often to blame, and the same may be said of some cases of acute general infection.

The origin of cancer still remains a mystery, and this notwithstanding the large amount of thought and labor which have been expended upon research as to the nature of this terrible malady. In a recent issue of *The Lancet* (October 2, 1920, p. 693), Dr. Alex. Paine (Director of the Cancer Hospital Research Institute) contends that it "is not a specific disease due to the activities of a special parasite, but a disordered growth of epithelium caused by various physical or chemical irritants, the most important being the toxins of micro-organisms." He contends that there is an intimate relation between inflammatory processes and cancer, the cancer arising in the later or destructive stages of chronic inflammation and being preceded by the degeneration of the cell.

From this degenerate cell, "a cell that in some manner has been damaged or injured, the cancer cells are descended." "In this light cancer appears as a terminal phase of inflammation and as a form of degeneration, in which sense, indeed, it was regarded by the older pathologists." The damage to the cell, in Dr. Paine's opinion, is most frequently to be found in the subtle activities of the toxins of various micro-organisms. Clinical evidence, as it accumulates, tends to support Dr. Paine's contention of the relation of chronic inflammation to cancer. In the Mayos clinic, in 153 cases of gastric carcinoma there was naked eye and microscopical evidence that the growth had developed in pre-existing ulcers. Cancer in the breast is frequently preceded by chronic mastitis, and I have already referred to the constant relation of chronic glossitis to cancer of the tongue.

Is there any reason to lead us to think that the toxins of dental sepsis may be a source of damage to the cell? The only work I am acquainted with that has any bearing on this subject was carried out by Mr. St. J. Steadman and reported by him to the last International Medical Congress. He examined 143 cases of cancer. The degree of dental sepsis (in these cases periodontal diseases) is indicated by figures (0) entire absence of sepsis; (1) slight sepsis; (2) moderate sepsis; (3) advanced sepsis. In these 143 cases 118 had advanced sepsis, 19 moderate sepsis, five slight. If we take the maximum amount of sepsis these 143 cases could have had at 3 x 143 = 429, we find that the amount present was 92.54 per cent. In 415 persons over 35 examined as controls, 66 had advanced, 123 moderate, 170 slight, 50 no sepsis. Taking the maximum amount of sepsis at 3 x 415 = 1,245, we find the amount present 614, or 49.00 per cent. These figures show that there is a greater degree of dental sepsis in patients suffering from cancer than in those free from the disease.

From the above brief survey it will be evident that dental sepsis may affect the organism in different ways; indeed, it may influence the course of most diseases. To quote the words of Dr. Stanley Colyer ("The Science and Practise of Dental Surgery," by Norman G. Bennett, p. 710): "The somewhat bizarre nature of the effects that have been attributed to dental sepsis may at first sight make the relationship appear improbable, but when once the principles that underlie the subject have been grasped, it will be realized that the conclusions are a necessary outcome. In all diseases there are always two factors at least, the seed and the soil, without which disease cannot exist. The seed varies, the soil varies; never are the two the same; never is the relation repeated. This is why variation in disease is common, and in no two persons does it run a precisely similar course. Dental sepsis is but a comprehensive term to include various septic conditions in the mouth; it is not a disease. The germs causing the sepsis vary, and so the germs passing into the body, and the toxin absorbed produce different results in different people. It cannot be said why germs of a particular kind entering one body produce a septicæmia, and in another an infective endocarditis; or why a toxin in one will produce anæmia, and in another a neuritis; but that such is the case seems almost certain, and for the time being we must rest content with the fact." An explanation may be forthcoming when we understand more fully the inborn errors of metabolism and the elective affinity of organisms.

To us as dental practitioners dental sepsis is a constant nightmare, and when asked for an opinion on its relation to this or that condition we do not always find it easy to express our opinion in definite terms. Our first step must be to ascertain the degree of sepsis; next the possibility of other sources of sepsis must be considered. If we are able to eliminate them, then it is fair to assume that the dental sepsis is the cause, but even if other foci exist and are the probable source of infection, the fact must be remembered that dental sepsis may aid the process by lowering the general vitality.

It is important to place clearly before the patient the position as it appears to you, and give him an idea of how far the mouth condition may be a direct or contributing cause. I wish to lay stress on this point, because at the present time rash statements are being made to patients, and they are being induced to part with their teeth on a promise of a complete recovery from their general condition, whatever it may be. This will lead to disappointment; dental sepsis as a pathological factor will pass under a cloud and progress be retarded.

In discussing treatment we may consider first the cases where infection is suspected from septic pulpless teeth. I am convinced that the only way in which we can place the patient in a safe position is by removing the teeth. The X-ray picture may show no apparent trouble, but X-ray pictures are not always reliable indices of pathological conditions, and we cannot rid ourselves of the fact that no technique yet devised will ensure complete filling in of the dentinal tubes and the numerous canals leading from the periodontal membrane in the pulp cavity. As long as these are empty they must be regarded as areas capable of harboring sepsis. When trouble is present around the apex of the tooth I am convinced that extraction is the right course.

To discuss the treatment of sepsis arising from periodontal disease would occupy more time than is at my disposal tonight; I must therefore be content to indicate the principles which guide me in treatment. This disease, which is a progressive destruction of the tooth attachments, results in the formation of pockets around the teeth, which are filled with sepsis. The treatment is drainage; if we can efficiently drain the pockets, then the disease can be controlled, but the drainage must be thorough, and must be carried out day by day by the patient. The reckless use of vaccines while neglecting this elementary principle of drainage is to be deprecated—*Dental Record.*

Ontario Dental Association

Report of Advisory Committee

R. G. McLaughlin, D.D.S. L.D.S. Toronto.

About six years ago now, at the fiftieth Anniversary of the Ontario Dental Society, its attention was brought to the fact that suits had been lodged and were being lodged against the dentists of the Province for alleged malpractice, and that a great many of the men were getting into difficulties in other ways. Many of the men thought that this Society should take some action to protect especially the younger members of the profession who would be challenged in this way, who would perhaps become panic stricken and make settlements that would be to their own detriment and detrimental to the standing of the profession in Ontario; and so in pursuance of that idea there was appointed an advisory Committee whose powers would be to advise in matters of this kind. For example, if a dentist were charged with malpractice and threatened with suit, he might refer this matter to the Advisory Committe and get the advice of the Committee and any other assistance it could properly give, but it was understood that the Committee should restrict itself to the matter of advice and not become entangled in any way in the defence of any particular dentist.

The work of the Committee commenced almost immediately, and it had a good deal of work to do along that particular line from the time of its appointment, and it was very careful that in its advice it would be fair to the public or the complaining public, as well as to the dentist himself. For example, if the Committee felt, on taking the matter into consideration, that the dentist was at fault, that he was really guilty of negligence or showed a want of skill, they advised him very frankly in that respect and advised him to make the proper settlement. But if they found on the other hand, that he was unjustly charged, they advised him to stand up and defend himself for the sake of his own reputation and for the standing of the whole profession, because an admission by way of settlement would simply be an admission of guilt on his part.

During all these six years we have helped to shut off a great many cases of this character that otherwise have been brought into Court.

Now in presenting this report, we have felt in the last year or two particularly, the alarming increase in the number of these cases before the Committee, and a great many others that the Committee have no knowledge of, that perhaps have been settled when they ought not to have been settled, or have been brought to trial in the dentist's own locality and frequently have been lost,—very often, we have found out, bebecause of poor preparation which, after all, is the reason why so many of our cases have been lost—a want of proper, efficient preparation, before the matter went into Court. In fact, these cases should have been so organized and prepared that they would be practically won before they went into Court.

With the somewhat alarming number, or increase in the number, of these cases the Committee is strongly of the opinion that we, as a Dental Profession in Ontario, should organize more strictly than we are organized in this respect, and in that way throw a protection around the members of the Dental Profession, so that they will not be a mark for an unscrupulous individual to extract $5,000 or $6,000 from, on a frivolous or unjust charge. They go after a lawyer who sometimes is willing to take a chance of that kind and write a threatening letter to the dentist, charging him with malpractice, and threatening him with legal proceedings unless he settles for so many hundred or so many thousand dollars.

Now, gentlemen, you know how it makes you feel when you get a letter of that kind from a legal firm. There comes that sinking feeling over you, and you would give anything to get out of the hole that you feel yourself in. It is in a case like this where an organization of our kind is of inestimable value, and if we can so organize, the matter of defending the dentist in cases of this kind will not be left to him alone, but will be directed from the Central Committee, which has at its disposal trained legal advice who will take care of the defence, see that it is properly organized and that justice is done.

If that is the case, you will find that the great bulk of these unjust charges will filter out, that they will never come to court, because it has been our experience, when we have referred our friend to a good legal advisor, a man who has a reputation in the Province of Ontario, that when the complainant finds he has to go up against this legal advisor of known reputation, very often he drops the case.

The recommendation that the Committee bring to you is this: that you empower the incoming Committee to take this further organization very seriously into consideration, take the whole matter to the Board of Directors, and ask for their practical co-operation in defending the members of the profession in Ontario in all matters of this kind. We feel that after all it is the work of the Board of Directors, even more than it is the work of the Ontario Dental Society. The Board of Directors grants licences to the young men going out to practice; they have powers of discipline; they say who shall receive a licence and who shall not receive a license, and they can say who shall practice and who shall not practice.

Now is it not only natural that they should look at the other side, and that they should throw a line of protection around the young men who are going out to practice? That is what we want to do, and we ask you to empower the Committee to go before the Board of Directors next week and lay the whole matter before them, and ask for their help in devising some plan whereby the younger men, and the older men too, will not be left to fight this sort of battle, which very often, if they are left alone to fight, is a losing one.

Dr. McLaughlin then moved the adoption of the Committee's report.

DR. HAROLD CLARK, in seconding the adoption of the report, remarked: "I have been a member for some years of that Advisory Committee, and have had a good deal to do with these cases, which has brought me to the conclusion that it is a very important thing for the Dental Profession to consider. The Medical Profession have established precedents in matters of this kind; they have an organization which looks after these things. We have not had that, and as Dr. McLaughlin said, there is a growing tendency on the part of some people to try and lift money from us on some trumped-up charge.

It is very important for us, at this time in our profession, to establish safe precedents. For instance, with a surgeon, as long as it can be established that he has taken every reasonable precaution in the performance of an operation, that is all the law requires of him. Whereas with a dentist performing an operation, if something does not go the way he would wish it or the patient would, they feel that they have a case where they can lift some thousands of dollars from him.

Now it is very important, when these cases come along, that justice should be administered for the profession, and let us not have cases of justice established as precedents for other cases to be based upon. And it is not a matter that should be left to the individual dentist to work out in his own way. To defend the case, to him would not only mean undesirable publicity, but greater expense, when perhaps he can settle it quietly for a few dollars, and the temptation, therefore, is for him to settle it. I feel it is a matter for the profession as well as the individual.''

DR. MORRISON: '' This matter is being brought before the Board of Directors which meets next week. While I have no authority to speak for the incoming Board, yet I feel that I know the members of the Board well enough to say that they will give any resolution you may pass their serious consideration, and that they will also receive any delegation you may send to them with the greatest of courtesy and give their requests their best attention.''

The motion for the adoption of the report was then put to the meeting and unanimously carried.

Report of Discipline Committee

R. Gordon McLean, D.D.S., L.D.S., Toronto

During the year the duties of the Discipline Committee have been very heavy. We ascribe this again to possibly the financial conditions which tempted men to do things which they would not naturally do. Their own good sense, ordinarily, would keep them from so acting, but when conditions of financial stress arise, a man is liable to do things that he would not otherwise do. However, we cannot altogether pass over these things.

The activities of the Committee can be classified as follows:

Illegal Practitioners—mostly laboratory men and others without Ontario Licenses.

Advertising Practitioners.

Practitioners engaging unlicensed help to operate.

The Committee often finds it very difficult to get the co-operation of those that make the complaints, and we now make an appeal to you to help us get the necessary evidence· This is difficult and disagreeable work at the best, and to get results we fust have co-operation from the members of the profession.

When it is known that certain laboratory men are breaking the Dental Act, we think that the least the profession can do to help your committee would be to send their work to ethical laboratories, of which there are plenty. It is suggested that a list of such laboratories should be placed in the hands of the practitioners.

It is often very difficult to get evidence on certain men known to be practising without a license, as they do it under the cover of legitimate laboratory work. On one case we have in mind we have spent $50.00 without being able to get the necessary evidence. This particular man is doing laboratory work for several ethical dentists.

In getting after these men who are practising without a license, it is probably the general opinion of the public that we are doing it for the sake of the dentists. We are doing this for the good of the public—the public are the people who are getting the short end of the stick when men without any experience or training undertake to operate in a mouth. The Dental Profession has to look after the interests of the public. We feel that the public have the wrong idea when we undertake to discipline a member of our profession, if they think we are doing it for our own protection.

During the year we have handled seventeen cases—one-third have been convicted and fined, some have promised to reform, and in others we, so far, have not been able to secure the required evidence.

During the year four men were summoned to appear before the committee—for improper conduct in a professional respect—in regard to advertising. The order of the Board was:

That such advertisements constitute improper conduct in a professional respect.

That the Board, however, in view of the fact that this and some other concurrent investigations are the first that have been entered upon, does not see fit to make an order of suspension or cancellation.

The Board further puts itself on record, that if any member of the College in the future inserts similar or other objectionable advertisements, he cannot expect that his conduct will be allowed to pass unchallenged.

We now say definitely that the Committee has decided to carry this matter of improper advertising to a positive conclusion. The Board has engaged eminent lawyers who have advised and will still advise them in all matters. It is on their advice that we have not acted on recent advertisements.

The Committee has so far taken no action in regard to the infringement of the Ontario Temperance Act, but members of the profession who persistently break this law may expect prompt action.

We have heard several criticisms regarding the work of this Committee in not going after this improper advertising in a more strenuous manner, but there are many angles that the man on the outside does not know or see. there are many we cannot tell you, but in the words of Old Bill "If ye knows a better 'ole, go to it."

I think this is all, Gentlemen, that I have to report on this branch of our work. I feel that the work is getting very heavy, and it requires a considerable part of a man's time in looking after the different things that arise. I have several times had patients who had work done by men who had no training come to me and ask me to undertake to have these men prosecuted. I have had on several occasions patients come to me complaining that exorbitant fees had been charged them by dentists. In some cases I have been able to get refunds for these patients. You see that this branch of our work is broad in character.

We have many sides of this work to deal with, and as I say, it is not pleasant work. However, someone must do it. The Dental Act gives the profession the right to control the members of the profession, and so the members that are elected to the Board by vote of the profession in Ontario appoint a Committee to undertake this. Some of us unfortunateare placed upon it, and we act to the best of our ability."

Dr. McLean then moved the adoption of the report, which was duly seconded.

Discussion Case.

Question: In the Ottawa papers there has recently appeared a half sheet advertisement of these advertising dentists who happen to live across the border line in the Province of Quebec, in Hull. Has the Ontario Society any control of that kind of work? It is going to affect the City of Ottawa and the dentists there very considerably. At the present time there is an inducement to go over to Hull, because there are liquid refreshments there that we have not in Ottawa, and it may act against us.

DR. McLEAN: One of the most difficult problems we have had to deal with has been advertising from outside sources into Ontario. We have that same trouble along the border, where the American dentists are advertising in the Canadian papers in the border cities. So far we have no solution though I imagine it might be easier with Quebec. We have no control over the Quebec Dentists by the Dominion Dental Council. The problem is therefore a difficult one. We are trying to find some method by which these men who are so advertising can be stopped from so doing and giving usually to the public work that we should be ashamed of in our profession. It has been generally found that where there is much advertising we discover some of the poorest work that dentistry knows of, and this is one of the reasons we want to keep advertising out. We believe that if a man depends on the quality of his work to bring him patients—not alluring statements he can make in newspaper advertising—the public will be much better served.

The question was asked if they had been successful in stopping these advertisements in Toronto.

Dr. McLEAN: The Board intends to carry this thing to a definite conclusion. There are a few men advertising in Toronto—you could, I think, count them on the fingers of one hand. We are particularly blessed in Ontario, because we have the cleanest dentistry on this continent. When you come to think that in a city of 600,000, where there are about 550 dentists, there are only five of them who have recourse to advertising to bring them patients, rather than depending on the quality of their work, I think we should be proud of our city and our province."

Dr. McDONAGH: We had last year a prosecution of one of the advertisers, and there were certain reports in the newspapers, and I understand that those reports were not right. Of course it is to the advantage of the newspapers to have advertisers, and any man who takes the position that Dr. McLean has had to take is bound to be in wrong with the newspapers. Unfortunately, a number of us believe everything we see in the newspapers, and the coloring they put on it, we put on. We do not know that the case was handled admirably by Dr. McLean and his associates, because the newspapers did not say it was handled splendidly. I want to draw the attention of the gathering to the fact that Dr. McLean is up against a very powerful organization when he is up against the newspapers."

Dr. R. G. McLAUGHLIN: Corroborated the statements made by both Dr. McLean and Dr. McDonagh, and stressed the point that the profession should be eternally vigilant. "It is hard," he said, "to put your hands on a dentist and say he must stop advertising because it is either unethical or illegal. There are two ways in which we may perhaps in the future overcome or keep in check this menace that is in our midst today. In the first place, perhaps the best weapon is education. If we can get the students to look at the thing from the proper standpoint, in their own interests, and start them out with the determination that they will go through the first years without resorting to advertising, then we have got them over the difficult stages, and also by educating men who are practising already.

Then there is another way that I have been thinking about very seriously, whether we can so interpret the laws on professional conduct sufficiently definitely to make that a misdemeanor before the law. If we can insert a clause in one of our by-laws to cover that particular field, then I think we have it solved."

The speaker here referred to a decision in the English Courts some years ago, where the Judge rendered a decision in a case of the Medical Council of Education vs. Allison. "Allison had on one occasion inserted advertisements in the public press reflecting on the methods that medical men had for treatment of their patients, and advised these patients to come to him for treatment, stating his fees. They caused his name to be struck off the list. He appealed. The Judge in his judgment said he was asked to define what constituted unprofessional conduct. He took as a test for all unprofessional conduct: If a professional man did something or said something in a certain community which his confreres, men of good reputation and ordinary good standing in the medical profession, deemed unbecoming to a professional man, then it was quite within the legal rights of the Medical Council to say it was unprofessional. That was a really sane test. It is the same test we apply to alleged malpractice. That is, that ordinary good medium practice should be the standard in determining such cases.

Now my thought is that if some such clause as that could be worked into the by-laws that are already in our books, it would govern all such cases. I think it would be worth while thinking about very seriously."

Dr. McLean: Another way in which this can be handled is from the public end of it. I think public education is going to get at this faster than the professional end. Some dentists are taking advantage of the ignorance of the public and of the good behaviour of the majority of dentists."

Dr. AMY: In connection with advertising and what the papers say, I wonder if we understand the papers or their attitude in the matter? We are taking one attitude and the papers another.

"The newspapers," said Dr. Amy, "consider bulletins advertising; they have no other term in their vocabulary for them. They do not regard anything that is paid for as educational work." The Doctors quoted an extract from "Marketing" in support of this contention.

"That work," he continued, "that we are doing should be handled as news items and should be accepted gratefully by the newspapers throughout the country. I think the sooner that we understand their attitude on the matter, the sooner we can get together and get an understanding, instead of one fighting the other."

Dr. O'Flynn, of St. Catharines, said they had the same difficulty in his city, of Buffalo dentists advertising in the St. Catharines papers.

He continued: "The attitude of a great many of these newspapers, I think, is what Dr. Amy has said, that they cannot see that it is wrong for individual dentists to advertise, when the Ontario Dental Association publishes bulletins in the interest of public health."

The doctor from Ottawa, who had brought up the matter of Hull dentists advertising in Ottawa, suggested that Dean Webster, of the College, correspond with the Dean of Laval College and use his influence to have their laws changed.

It was replied to this suggestion that that might safely be left in the hands of the Discipline Committee.

Dr. MORRISON thereupon stressed the arduous duties entailed in the performance of Dr. McLean's work, and asked for an expression from the members that they would back the committee up in making the dental profession ethical throughout the profession.

Dr. McDonagh moved a hearty vote of thanks to the Discipline Committee for their action throughout the past year and commended them on the good work that they have done, and assured them that we are heart and soul with them in everything we can help them.

This was seconded by Dr. Ross Thomas, of London, and unanimously carried by a standing vote.

Dalhousie University Graduates

The following have recently graduated from the Dental School of Dalhousie University:

B. C. Calkin, New Glasgow; M. A. Clay, Digby; C. B. H. Climo, Halifax; C. J. Dooley, Whitney Pier; G. D. Floream, Sydney; W. L. Fluck, Halifax; M. F. Hogan, Halifax; N. S. McDonald, Halifax; S. G. McIsaac, Sydney; A. J. McLellan, Windsor; M. E. Morrison, River Bourgeois; L. B. Roof, Bay River; Miss Hazel A. Thompson, Halifax; H.H. Heal, Halifax; K. P. Johnson, Halifax.

The Annual Post Graduate Course in the Royal College

Immediately following the meeting of the National Dental Association in Cleveland, the Board of Directors of the Royal College of Dental Surgeons will conduct an intensive post-graduate-class at the College Building in Toronto, from Monday, September 17th to Saturday, September 22nd, 1923.

The following subjects have been decided upon, from which each member may choose:

Preventive Dentistry, Diagosis, Pathology, Perilasia, Operative Dentistry, Surgery, Partial Dentures, Crown and Bridge, and Full Denture Work.

The personnel of instructors is as follows:

Drs.—I. H. Ante, W. E. Cummer,
J. A. Bothwell, E. F. Risdon,
Harold K. Box, Edgar Paul,
F. A. Clarkson, A. E. Wallace,
Wallace Seccombe.

A cordial invitation is extended to all ethical practitioners. Those who attend the National Dental Association meeting in Cleveland will find Toronto but nine hours railroad journey from Cleveland. Further particulars may be had by addressing the Royal College of Dental Surgeons, 240 College St., Toronto, Ontario.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

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Vol. XXXV TORONTO, AUGUST, 1923 No. 8

Pernicious Anaemia

Pernicious Anaemia is the subject of a recent paper (*Lancet,* February 10th) by Dr. P. N. Panton and others, the full report based on studies of 117 cases which were under observation during the period 1909 to 1920. Of the local symptoms and signs referable to the gastro-intestinal system, although a painful tongue was complained of by only eight patients, the authors' remark on the frequency with which patients on being questioned admit that a sore tongue had at one time or another been present. In this series of cases a specific enquiry had been directed to this point in 34 cases only, so that the available evidence as to the frequency of painful tongue is insufficient. The reported notes on oral sepsis are as follows:—

"We have investigated as far as possible from these records the frequency of oral sepsis, and we are confronted by the difficulty of appraising what is exactly meant by this term. Of the 117 cases the state of the mouth is unknown in 13, and pyorrhoea was said to be present in 47. In addition, 13 patients had false teeth, 2 were edentulous, and 3 were noted as having few teeth. In 10 cases mention was made of carious teeth; in 8 cases the adjective 'fair' was applied to the state of the mouth; in 12 cases the teeth were described as 'clean'; and in 9 cases as 'good.' In this series, then, of 104 cases investigated on this point, in 21 only was the mouth described as free from sepsis. For purposes of comparison we have examined the mouths of 100 adults over the age of 25 in the medical wards of the London Hospital, and found that 37 had pyorrhoea, 29 had carious teeth, 20 were edentulous, and 14 had clean teeth free from sepsis. We are not of the opinion that oral sepsis has any proven etiological significance in pernicious anaemia, although we freely admit that it cannot be but detrimental to a patient's health and may at times produce a secondary anaemia such as is caused by any other chronic affection.'' Oral sepsis is also referred to in the authors' discussion of certain aspects of the treatment of pernicious anaemia. The majority of the patients in this series received the most thorough dental treatment, including in some cases wholesale extraction of teeth. The reporters state that they failed to satisfy themselves of the cure of a single case of pernicious anaemia by the treatment of oral sepsis. They suggest that dental treatment should be limited to definite specific foci, and otherwise should as far as possible be conservative. It may here be noted that, although partial arrest and remissions are not infrequent, the prognosis in pernicious anaemia is so very unfavourable that the authors state as their considered opinion, ''recovery from pernicious anaemia is an event of such rarity that it cannot be accepted in any case without the fullest confirmation.''

FOR SALE—Complete Dental Equipment in old established office. Price $500.00. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St Catharines, Ont.

Dominion Dental Journal

Vol. XXXV. TORONTO, SEPTEMBER, 1923 No. 9

ORIGINAL COMMUNICATIONS

Canadian Dental Association

President's Address to the Toronto Convention, 1923

Dr. H. F. Whittaker

It gives me great pleasure, before touching on any other subject, to welcome the ladies, our friends from the United States, essayists and clinicians.

It is nearly two years since the Canadian Dental Association met in convention in the city of Ottawa. These two years have been years of stress and re-adjustment, and the dental profession has not been exempt from the trials and discouragements of that period, any more than its sister professions, or the business interests of the country, neither have its members shirked their duty in the work of helping Canada on its way back to peace conditions. In our zeal as practitioners we have not forgotten that we are also citizens.

I am obliged, at the very opening of my remarks, to record with deep regret that the Canadian Dental Association and the dental profession in Canada has suffered the loss within the past few months of two of its brightest and biggest men, in the persons of Dr. Frank Woodbury and Dr. Harry Abbott.

Dr. Woodbury was, without doubt, one of the outstanding men in Canadian dental educational matters, being Dean of the Dental department of Dalhousie University, one of the founders of the Dominion Dental Council, a member of that council from its beginning and one of its past presidents. He was always prominent in the Canadian Dental Association also and, in fact, its immediate past president.

Dr. Abbott was a member of the Dominion Dental Council from its beginning and its first president. He was long identified with the Royal College of Dental Surgeons and was at one time President of its Board of Directors. He was at all times a willing worker in matters affecting the profession.

DR. H. F. WHITTAKER
President Canadian Dental Association.

Their hosts of friends at this convention will miss their friendly smile and hearty handclasp, and their guidance and wisdom will be regretfully desired in the deliberations of this gathering.

The New Constitution and Bylaws

The Canadian Dental Association adopted its new constitution and by-laws two years ago, and while, of course, they are not perfect they have been found to work out well, and are a great improvement, especially from the view-point of your president, from whose shoulders they have taken about 90% of his work and placed it elsewhere to be better performed.

The idea of centralizing the work under the chairman of the executive committee has also turned out an improvement, in that it has made it easier and quicker to obtain results.

Your executive, working with the Royal College of Dental Surgeons, was able, in the Fall of 1920, to prevail upon the Dominion Government to re-consider its ruling that the dentist was a manufacturer, and so secured our exemption from the manufacturers' tax.

Dental Education

Since our last meeting the majority of the dental schools and colleges, in both Canada and the United States, have announced the adoption of the pre-dental year. This is a long step in the right direction, and will no doubt bring lasting benefit to both the profession and the public, for dentistry cannot claim or receive its proper place among the learned professions or in the minds of the people until its members are qualified educationally to stand with the highest. But while our future dentists cannot be too highly educated, I wish to suggest that the public is also in need of dental education, and must be shown, not only the benefits but the necessity of dental services; what it means in health and comfort, and also what improvement in dental conditions means in increased efficiency and in actual saving to the individual and community as regards material wealth. The public must be taught that from childhood up, human beings cannot give their best under the handicap of dental diseases; also that the replacement of lost dental organs cannot take the place of the healthy tooth itself.

Our men of the Army Dental Corps overseas brought this truth home very forcibly to the men of the army and the work is being continued through our school clinics and others as well.

The University of Toronto and the Canadian Oral Prophylactic Association have this spring performed a great service, in this connection, to both the public and the profession, in making it possible for Dr. Harry Thomson to visit all the cities of the west with his message of dental health.

I had the pleasure of hearing Dr. Thomson several times while he was in Edmonton, and his talk to the Rotary Club was an inspiration to all who heard him. Among those who came to Dr. Thomson at the close of that meeting to offer their thanks and congratulations were the superintendents of the public and normal schools and several medical men; this shows that he had a real message and that it was well received where it would do the most good.

When we realize that there is but one dentist in Canada to every 3,047 people, we know that the public as a whole is not obtaining the services it should. It is stated that but 25% of the population ever receive dental aid.

This condition is not confined to any one locality or province, though we find however that the ratio varies considerably in the different provinces. According to figures received from the Dominion census and the reports of the secretaries of the provincial associations, Ontario leads with one dentist per 2,171 of population, British Columbia 2,255, Nova Scotia 2,732, Alberta 3,233, Manitoba 3,503, New Brunswick 3,528, Saskatchewan 4,614, Prince Edward Island 4,659, and Quebec 5,208.

How often has the question been asked, are there enough dentists in Canada? If we are to confine our services to the 25% of the people the answer is yes. If we are to reach out and serve the other 75% there can be no two opinions, the answer is no. How are we to reach the other 75% Why do they not avail themselves of the services of the dentist? It surely is not because they are not in need of such services. Then, is it because of the cost to them? Perhaps both.

Dental education of the public will greatly overcome the first reason, but what about the second, the matter of cost? To my mind, one of the biggest problems before you to-day is the matter of the cost of dentistry to the people. Conventions such as this, and post graduate classes make us better dentists, but is it not a fact that each new step, each new and better method, but adds to the cost of the service to the patient? Let us consider how we can make it possible for the majority, the 75%, to receive adequate dental services at a reasonable outlay, without sacrificing the high standards we have set for ourselves.

The Canadian Dental Research Foundation has been very active during the past two years, and is doing a work that should demand of the entire dental profession, both moral and financial support to the greatest extent.

The funds of the foundation have been increased by several thousand dollars since you received their last report, but is still very far from reaching the objective set. It will need hard personal work on the part of many men throughout all the country to build this fund to the point where the future of the work is assured.

The report of the committee will be received later during the convention.

The Oral Hygiene committee have a very comprehensive report to submit to you, together with the reports of the different provincial committees.

It is not my intention to anticipate the report, but I recommend it to your careful consideration and hope every member here will be present when the report is delivered.

Post Graduate Work

Never in the history of the dental profession, or any other, has there been so much stress laid upon post graduate work as during the last four or five years. But this has not been an unmixed blessing as we have suffered to some extent from too much zeal along this line and have been hurried into new and untried places without due consideration. We cannot hope to keep up with the advances in our work without these aids, but should there not be some means to prevent untried and unproven theories being given broadcast to us?

In some cases men have made it a business to travel up and down the land propounding their message who have not given it the acid test of sufficient trial in practise, or have advertised their ideas or methods to the public through the press and probably without intending to do so, have frightened the people into demanding of their dentist services not demanded by their needs.

This condition, no doubt, has been brought about by the race for the high fees obtainable for their post graduate courses. Years ago, when a member of a profession discovered or worked out something of benefit to his profession or the public he gave it to them through the medium either of his college, professional journals, or conventions, and did not expect to commercialize it for his individual benefit. Perhaps they were wrong but their memory has lost nothing by it. I do not wish you to believe that I do not hold the labourer worthy of his hire, or that these men who through years of hard work and study have brought dentistry a lasting benefit, are not entitled to material profit as well as honor due them, but I do think that in the immediately preceding years, to a greater extent than is good for us, men have made a business, and a very profitable business, of organizing and exploiting post graduate courses, men whose first aim and object has been the almighty dollar.

It seems to me that the proper place for post graduate work lies with our dental schools and colleges, and for those who are not able to attend regular courses, a system of extension departments might be established, somewhat after the plan adopted by our western universities in other branches of study.

Another field for this work lies with our conventions, study and clinic clubs, but all such courses should be under some recognized authority.

Co-operation

In the past few years the spirit of co-operation between the medical man and the dentist has grown stronger. This is very desirable and will continue increasing to the lasting benefit of both, and more so, to the public for whom both professions exist. We have very much to learn from our medical brother and we can at least balance this account in our assistance to him when working side by side.

But there is another aspect of co-operation I wish to mention and to ask careful consideration for all, that is the co-operation between members of our own profession. Let us get away from the old idea of opposition and get the better, brighter light of co-operation; let us consider the man across the hall, across the street, or down the block, not as a rival but as one that we can appeal to for help and inspiration, one that we can take our troubles and problems to for help in solution and to whom we will be more than pleased to render the same services. Also, let us get the broader vision that our patients are entitled, not only to all the knowledge and skill we may have, but to that which, through the exchange of methods, other men may possess.

Dental Legislation

Dental legislation in the provinces of the Dominion seems to be on a very unsound basis. Legislators are given to look upon dental laws as for the protection of the profession, instead of as they rightly should be, for the safeguarding of the public. Dental laws in place of being used for the betterment of dental standards and conditions are often, for political purposes made to work real damage to the public by the licensing of the under-qualified men. The legislative committee of this association has a broad field and a big opportunity for work in helping to bring about throughout the Dominion, better and more uniform laws.

I further recommend that this committee give careful study and consideration to the question of the Government Income Tax, as applied to the profession, with a view of obtaining changes in its administration for the removal of unjust charges and the obtaining of concessions already granted the business man, but now denied to the professional man.

Allow me to convey to the president, officers and members of the Ontario Dental Association, the thanks and appreciation of the Canadian Dental Association for their great help, co-operation and sacrifices in making this convention a success. They have been more than generous and have heartily united with the officers and committees of this association in taking a full share of the work and burden of preparing your program, and have done this at considerable financial expense to their association.

Our thanks are due, and I now tender them to our essayists and clinicians who have come here, many from a great distance and at considerable inconvenience, to make this a week of profit and pleasure to us.

Also, I want to express your thanks and my own to the officers and men on committees, whose work has made this convention possible. To mention any one person would be doing an injustice to the rest for all have worked well and cheerfully.

We have a full and interesting program before us for the next five days, well interspersed with pleasure, and I ask your co-operation with the chair for the smooth dispatch of all business.

Ontario Dental Association

President's Address to the Toronto Convention, 1923

R. J. Sprott, D.D.S., Barrie.

It gives me great pleasure to extend to the members of the dental profession assembled here in this the fifty-sixth annual convention of the Ontario Dental Association, a very sincere and cordial welcome. We especially wish to welcome those who are our guests, clinicians, speakers, and any others who may in any way contribute to the program to be presented to this great educational annual re-union of the dentists of the Province of Ontario.

In recent years there has been a decidedly greater interest shown in the attendance at our annual convention. This is, I believe, a very good proof that the committees in charge of arranging the programs have sensed the needs of the profession and have succeeded in placing before you a program that is really a very definite educative factor in promoting the best teaching, and application of modern methods in dental practice.

A splendid foundation has been laid by those of our profession who have gone before us. They built conservatively and with stability. It is ours to build a super-structure that in its extent and scope will prove a benefit to mankind, and that will prove worthy of the foundation so well and truly laid. They did not progress rapidly, but knowledge was retained and advancement was sure if gradual.

Preventative Dentistry

Not many years ago dentistry was largely a reparative art. We have arrived at a time when it is vastly more. It is not satisfied to continue as formerly. There was a long period of reparative construction based upon the application of art and science. Wonderful progress has been made in this sphere of dentistry, and, while a wider and vaster scope has been opened up, the reparative art still remains and should have the best effort of the profession in its application, and while we must of necessity continue to teach and practice this phase of dentistry we are making substantial advancement in a greater and broader sphere.

Whatever may have been the attainments in producing mechanical appliances for dental restorations and producing better operative technique, the goal of better dentistry is to establish prevention. The old adage that "an ounce of prevention is better than a pound of cure" is not more fitting anywhere than here, and it is obviously the paramount duty of every dental practitioner while daily engaged in the performance of restorative operations and operative technique to work to the end, and keep in view that preventative dentistry is in a large measure attainable.

Diet

The relation of diet to development of sound teeth and absence of caries has come as a revelation of what may be accomplished by the use of foods that contain a proper balance of tooth producing materials. This subject is worthy of the closest investigation and study. The dentist should be in a position to advise mothers as to what should constitute a properly balanced diet during the pre-natal period as well as in early childhood. Little opportunity has been afforded the average dentist heretofore in a systematic course of study in this subject, and so far there does not seem to be any authoritative work recommended, so that the profession at large may have a concrete course of instruction to aid in this very important subject.

Research

A great amount of valuable work has been done in research in recent years. The Royal College of Dental Surgeons and its students have undertaken and accomplished considerable work, which has the effect of stimulating effort in this direction. Very valuable results have been attained by those who have followed research work, and by having presented to the dental profession by a series of bulletins the results of investigation of the committee on Research very valuable information has been placed before us. This work, which is of interest to everyone, and necessarily of valuable assistance in promoting practice which is in advance of that which has formerly obtained, is deserving of liberal support, as without funds the work of the committee on Research would be handicapped.

Canadian Oral and Prophylactic Association

The work of this association with its broad vision and untiring efforts has accomplished much for the public welfare. An immense amount of good has been accomplished that would not have been done had this association worked with less perseverance than it has.

The dental profession cannot commend too highly the unselfish efforts and work accomplished by this association and every assistance should be given those who unite to further the end to which this association aims.

RECIPROCITY IN DENTAL LICENSES

Negotiations for reciprocity in dental licenses between Great Britain and Ontario, if not already completed, are well under way. In effecting reciprocity the board of the college will have accomplished something that will tend to open a wider field for students and graduates of our college and place the status and high efficiency of the dental profession in Canada and especially in Ontario before the people of Great Britain.

GOVERNMENT ASSISTANCE

The interest taken by the government in the finance and welfare of the Royal College of Dental Surgeons and its students is greater than that generally known by the profession. During the past year a grant of twenty-five thousand dollars was made to assist in carrying on the work of the college. This assistance is thoroughly appreciated and has been of material help in enabling the college to finance its affairs at a time when the amount derived from students' fees is declining and the college is adjusting itself to present conditions.

DENTAL CLINICS

The willingness of the Board of the R.C.D.S. to cooperate with dentists throughout the province by sending a clinician to any centre to present a clinic to any group of dentists does not seem to have been taken advantage of as it might have been. This method of bringing instruction to the dentist in his own office and upon patients of his own selection should stimulate an endeavor to a better technique, and a better treatment than is often practised. It would also have a beneficial result in bringing all the local practitioners together thus, developing a more progressive attitude and interest in office practice.

EDUCATION

If the best work of the profession is to be accomplished, and by that I mean the greatest service rendered to those in need of dental treatment, it must be done by educating the public. Just how this can be done so as to reach the greatest number and to remove educational propaganda from anything that may appear to the public mind as advertising is a problem in itself.

The Board of the R.C.D.S. has combined with the Ontario Dental Association, each contributing an amount for the purpose of putting on an educational campaign. This has taken the form of bulletins in the daily press and no doubt these are widely read. If this can be kept before the eyes of the public long enough it will have results, but it is expensive and, therefore, can be carried on only to a limited extent. Information of an educational nature could be carried to the public by members of the dental profession and at a cost that would not be burdensome to anyone by each dentist distributing among his patients in pamphlet form such information as might be prepared and recommended.

It is beyond doubt that patients read any information recommended and presented to them, provided it is direct and to the point. At the present time the public is in a mood to ask questions. Patients are seeking information. If the dentist can supplement what he has opportunity to explain, by presenting information in a short pamphlet which the patient can take away and read at his leisure, and carry into the home, a vast amount of educational work can be carried to a great number of people.

Advantage might also be taken of the moving picture theatres. Already much is done in presenting to school children some of the subjects in the school curriculum. Bulletins could be made use of in the same way that would make an impression on the mind. Courses of lectures could be arranged for in hospitals to nurses in training. This is perhaps done in some hospitals but there are many in which little is taught. Nurses should know something of the dental diseases and the necessity of proper diet for children in building up tooth tissue both in the pre-natal period and after birth. They should know something of the effect of diet in relation to caries. Much has been accomplished in school clinics and by the school nurse, but we are only on the threshold of what should be done. In short, the greatest need of the public today in the realm of dentistry is the duty of the dental profession to supply that need.

During the last few years there has been a tendency to stabilize methods of practice. With the use of the X-ray and its advantages that has been a decided improvement towards better operative dentistry. The teaching given recent graduates has done much in developing better operative technique and the splendid clinics presented in our recent conventions have also done much to improve the standard of our work. Radical treatment has given place to more sane methods, and taking an average better dentistry is the result.

The program of this convention has been planned in anticipation of the needs and wants of members of the Association. The clinics are in the hands of clinic clubs and clinicians who have made marked advancement in their respective subjects, and who have established reputations for progressiveness and advanced methods in our own country as well as in the United States.

Attendance upon these clinics is certain to stimulate a closer application of methods that have been approved by the best men and teachers in our profession, and the members of this association are to be congratulated upon having the opportunity of sharing in the knowledge which will be presented by these leaders in dentistry.

The members of this association are deeply indebted to the Toronto and Hamilton members of the committees who have arranged the programme which has been placed in your hands. More labour and expenditure of valuable time has been devoted to the arrangements than any of you realize. This work has not been done for their own pleasure, but that the members of the association might have the opportunity of once again coming in closer contact with those who are leaders in their various departments of work, and thus passing on to the citizens of the country through you the best service that dentistry affords.

The ladies' committee has also been unsparing and unselfish in providdng many of the social features of the convention, and I would like to assure them that we genuinely appreciate what they have accomplished and what they have endeavored to do to make the visit of the ladies a real pleasure.

I would also like to express the appreciation of this association to the Board of Directors of the R.C.D.S. for their share in making the meeting a pleasure and benefit to the members and their wives.

In conclusion I wish to thank all who in any way have assisted in the preparation of the programme of this convention and to express the hope that their work may be the means of stimulating the profession in the performance of a better service to their fellow man.

A Visit to Scotland

A. E. Webster, D.D.S., M.D.S., M.D.

Our first day in Scotland found us in St. Enoch's Hotel, Glasgow, on a Sunday. Our family by birth and training having the "church habit" could surely be easily accommodated, because the only places open were the churches. There is a story told of a traveller from another part of Scotland upon leaving the hotel in a pleasant frame of mind on a Sunday morning was cautioned by a policeman to be careful. The traveller replied that he had done nothing wrong, that he had not even whistled, but the policeman said in a cautioning tone he looked as pleased as if it were Monday morning. This expresses the attitude of the people of Glasgow to all forms of unnecessary work or play on Sunday. It is one thing to show respect for the Lord's Day by negation, but it is quite another to show it by some positive action such as attending church. It is quite wrong to judge of a city's religious fervour by the knowledge of churches, preachers and services which can be obtained from hotel officials. Judged on this basis, Glasgow is hopelessly irreligious, because there was not one official about the hotel on Sunday morning of 15th July, 1923, who claimed to know of any church of any faith within several miles where one might attend. The door man did say he knew of a Roman Catholic church in Govan and St. Enoch's church which he could see from the door where he stood, but he could not tell the hours of the services in the latter. It is a remarkable thing that hotel officials can tell you all about the horse races, the games and the fights, but nothing about Grand Opera, Educational Institutes or Churches. It may be that people who are interested in such things know their way about and never have to ask an official. Once in a hotel in the south a friend and myself wished to go to some church where the good average citizen attended. Each official of the hotel in which we were staying sent us from one to another for the desired information, until we finally reached an old man in a cheque room. On the way we heard many frank acknowledgments of not having been in a church for from ten to twenty-five years. In the end we went to a church run by a hare-brained evangelist whose antics were followed by a lecture on Mormonism by a woman who was collecting money to fight their inroads on the commercial and religious life of the people of the United States. Judging from what we asked for, this was the church where the good average citizen attended—in the opinion of hotel officials.

It may be that many of the regular officials of St. Enoch's hotel were away because the "Fair" was on. Our conception of a Fair is a collection of agricultural products or manufactured articles for exhibition where people attend to view them, but not so the Glasgow Fair. It is an institution many hundreds of years old and inaugurated by Royal Charter in King David of Scotland's time. It is a holiday for everybody. It lasts ten days or more. For most of this time the great majority of factories, stores and places of business are closed. It begins in mid July.

To return to the church question, when we had just decided to drop into the first church we could see late or early, Prof. A. B. McCallum, one time Professor of Bio Chemistry in Toronto University and now of McGill, noting our dilemma, advised us to go to St. Mungo's Cathedral which was originally built in the Eleventh Century. It was in this neighbourhood where Glasgow began and about the Cathedral are cemeteries, gaols, mad-houses, asylums, hospitals and colleges of learning. The services were of the Established Church of Scotland.

As we were leaving the church a courteous gentleman asked us if we were strangers, and having acknowledged the fact, he asked if we would like to go with him into the Royal Infirmary where he was going to make his official inspection of Wards 38 and 39—one Surgery and the other Medical. We soon found out that our guide, who had officiated in part of the services of the Cathedral, was Dr. Faulds, a visiting Surgeon of the Infirmary. After a hasty inspection we returned to our hotel accepting a gracious invitation to see Dr. Faulds operate on Monday morning at 9.30. There were four cases for operation, two of acute osteo myelitis of the tibia in boys of thirteen. One turned out to be tuberculous, involving the full length of the bone which in the surgeon's opinion demanded amputation, but not having consent to do this, the cavity of the bone was scraped its full length and dusted full of iodoform powder and packed with plain gauze. The other case had been previously cut down upon in the middle of the shaft but as pain continued and signs of toxemia had begun it was decided to make further exploration. Pus was found in both the upper and lower epiphesis. This confirmed once more Dr. Fauld's opinion that most cases of osteo myelitis in children begins in the epiphesis. The third case was an epitheloma located just behind the ear of an old man. A wart had been there for many years, but about three months ago it began to grow and bleed when disturbed. It was now about the size of the half of a large plum and involving the glands of the neck. These as well as the tumor were removed.

Glasgow Dental Hospital

Our time was cut short by another appointment to visit the Glasgow Dental Hospital, which is located at 15 Dalhousie Street. The building is about forty feet by sixty and four stories high. The only occupant was the janitor's wife, who was directing repairs and cleaning, which was now at a standstill because of the Fair. Everything was upside down, but a fair idea of the working of the Institution could be made out. A new Laboratory had just been completed in which to teach mechanical dentistry. This and the Laboratory to teach dental histrology, bacteriology and dental anatomy were more or less in good order. The infirmary is on the top floor with a complete glass roof which ought to give a good light, but in addition there is an electric light at each of the forty-five chairs. There are two sessions each day for operation work—three to five and five to seven. This allows half of the class to get two hours practise per day. The janitoress said there were about one hundred and fifty pupils in attendance, this of course meant in the last two years of the course, because students entering the hospital must have previously passed examinations in the fundamental sciences and dental mechanics. Such courses are not given at the Hospital. The basement floor contains a Students' lounge room, a lecture room, furnace and hot water supply. The entrance or ground floor has the reception rooms anaesthetic and exodontia rooms. The building was not erected for a Dental Hospital and like others it finds itself in a constant state of flux to be adapted to new demands.

The organisation of the Dental Hospital is similar to a great many others and different in some respects. It is organised under the Joint Stock Companies Act as understood in Canada. There is no share capital. No profits can be paid nor can more than three directors be paid for their services. Only out of pocket expenses can be paid. The teaching of students and the working of the hospital are separate organisations in some respects. The Hospital receives subscriptions from the public and from fees charged patients who have dental services. The staff of teachers receive all the fees paid by the students for their several dental courses less ten per cent., which goes to the hospital. Only courses in dentistry are taught in the Dental Hospital, such other courses as anatomy, chemistry, physiology, physics, etc., are obtained elsewhere. Before a candidate is allowed to come up for examination, he must present tickets for having taken courses in all the subjects of the curriculum. The examining body is the Royal Faculty of the College of Physicians and Surgeons of Glasgow, and all teacher's courses must be acceptable to them before their candidates may come up. This leaves each teacher free to conduct his own course and make it meet the demands of the examiner.

Method of Management

The affairs of the Association shall be managed by a Board of Governors numbering eighteen, made up of representative members (1) The Lord Provost of the City of Glasgow (2) The Dean of the Hospital (3) one person appointed by the Merchant's House of Glasgow (4) one person from the Trades House of Glasgow (5) one person by the Corporation of Glasgow (6) one person appointed by the Faculty of Physicians and Surgeons of Glasgow (7) three persons appointed by the Staff of the Dental Staff and elected members, nine persons appointed by the members and subscribers at each annual meeting. One-third of the elected members must retire at each annual meeting and are eligible for re-election. The quorum for conducting business is five. The number eighteen may be reduced or increased. Invalid votes counted as valid must stand so. Any action of the Board is valid provided the quorum was present and the meeting regularly called. The Secretary and Treasurer is Mr. Alexander, who does not spend any time in the hospital. The Dean attends the hospital every Friday morning, for which he receives no salary. A Clerk spends two hours a day looking after the infirmary business, in addition there are two supply Clerks and a Receiving Clerk. There is a House Surgeon and an Assistant, as well as a Visiting Dentist present during the hours the Infirmary is open for patients. When the teachers come they look after their own Laboratories and Lecture Courses.

The charges for Dental services are as follows:—

Extraction without anaesthetic	no charge
Extraction with anaesthetic	38 cents
Extraction with gas	62 cents
Extraction with ether	25 cents

FILLINGS

Plastics	25 cents
Tin	25 cents
Porcelain	25 cents
Metal	25 cents
Gold	$1.10
Artificial teeth, full upper or lower	$15.00

These charges have been roughly translated into Canadian currency. The information herein contained was obtained from the Calendar, Articles of Incorporation, and enquiry from dentists and personal observation. It does not pretend to be absolutely accurate, but is intended to give a general impression of the organisation and conduct of the Institution.

An Old R.C.D.S. Graduate

Students of the R.C.D.S. who were in attendance in 1912 will remember John Menzies Campbell, who graduated after one year's attendance. The writer spent the evening with Dr. Campbell at the Arts Club. The next day he visited Dr. Campbell's office at 14 Buckingham Terrace, Glasgow, which is one of the most artistic and efficient offices seen for many a long day. The office is located in a private house in which he and his brother live. He maintains quite a staff of servants, nurses, mechanics and students. Dr. Campbell was Professor of crown and bridge work in the dental hospital for a number of years, but increasing practise and other interests compelled him to give up teaching. He would be glad to see any R.C.D.S. graduates who might be spending a time in Glasgow. Through Dr. Campbell we were pressed by the Glasgow Broadcasting Station to deliver a message from Canada on Dentistry to the people of Scotland, but having made arrangements to leave Glasgow before the appointed time, together with the fear that the speaker's accent would be so far from that of the people listening, we refrained with regrets.

Prompt Action

It is sometimes thought in Canada and often said that the people of the old land are slow in thought and action. Let this be as it may, we will recite one circumstance which disproves this so far as medical practise is concerned at any rate. About four o'clock in the morning the night porter of our hotel called at our door to know if we could come at once to a guest's room where a man was ill. His wife had been up with him all night or since the call of the hotel doctor about midnight. The man was exhausted by hiccoughing and in a highly nervous state, lest he should have a stroke which his family physician had told him of because of his age and Arterio Sclerosis. The hotel doctor left him some cough medicine which had not allayed his symptoms. Upon examination there was no temperature, pulse rapid but rather weak, respiration normal. The symptoms made us think of gastric irritation, so we gave him a glass or more of warm water with instructions to try and vomit, which he promptly did. The vomit showed no traces of food, but a thick black fluid, evidently blood, discolored by gastric contents. The patient was at once put to rest on his back and the wife advised to call a physician or surgeon at once. They being strangers like ourselves knew no one. We suggested calling Dr. Faulds whom we had so accidentally met at the Royal Infirmary. Less than fifteen minutes from the time we got him on the 'phone he was at the patient's bedside after driving over a mile and a half. True, he had not laced his boots or put on a collar, but he was there ready to act. In twenty minutes more the patient was in a private hospital ready for operation if need be. The lavege and vomiting had cleared the stomach and contraction occurred sufficient to stop the irritation and hemorrhage. When we left Glasgow at noon the patient was fairly comfortable. Our experience with Canadian physicians would not warrant us in thinking such prompt action would follow a night call. In less than one hour from the time we saw the patient he was ready for any demands in a Nursing hospital.

Diagnosis of Cysts in Dental Areas

A. C. Steeves, D.D.S.

In considering a cyst from a standpoint of diagnosis, we must first consider what a cyst is, how it occurs and develops, and how it compares with other pathological growths which may occur in similar locations.

We find several more or less similar definitions given by different authors. Dorland says "a cyst is any sac containing a liquid"; in Cunning and Joll a cyst is said to be "a tumor resulting from the abnormal dilation of a pre-existing tubule or cavity." Widdowson, in Notes on Dental Surgery and Pathology gives the following: "A cyst is a fluid swelling, containing a viscid, translucent, mucous-like fluid, arising from the alveolar dental periosteum." From these and others we gather that a cyst is a tumor-like growth or swelling, containing a fluid which may or may not be sterile. There are three types, the dental, dentigerous and multi-locular.

The Dental Cyst is a single cyst which usually develops at or near the apex of a non-vital tooth. The Dentigerous Cyst may occur in any position in the jaws, and its capsule encloses part or all of a fully or partially developed tooth. The Multi-locular Cyst usually occurs in the molar region of the lower jaw, and resembles numerous cysts enclosed in a single capsule, separated by either fibrous or bony septa.

Cysts usually form or begin to form during or immediately following the years during which the teeth are calcifying, as they have their beginning usually in the tooth germ or a tooth still in progress of growth. However, when a tooth is fully formed and erupted, a segment of the tooth germ may be left embedded in the bone, and may be dormant for years when some slight irritation will cause a recommencement of its original function and proliferation will begin.

The cause of cysts is uncertain, but we know that proliferation of cells is due to irritation and, therefore, may look for irritation as the cause where cysts are present. A segment of the enamel organ or some other embryonic epithelial structure is left in the bone, irritation such as septic fluid from a putrescent root canal or chronic abscess, causes an increase in blood supply, and consequently cell nourishment is increased, and the embryonic tissue takes up its normal function of proliferation. This goes on and a small ball of epithelial tissue is formed in the bone. This is the beginning of a dental cyst, and causes sufficient irritation to produce activity of the osteoclasts, and a cavity is formed in the bone, in which the epithelical growth continues. As the ball enlarges the inner cells are more or less walled off from the blood supply and their activity lessens, the proliferation of the outer cells forms a dense wall around them; finally their nourishment is cut off altogether, and they degenerate to the point of liquefaction. The liquid thus formed may become so toxic that any organism therein will be killed, this accounts for the sterile fluid found in cysts.

Dentigerous Cysts are perhaps produced by the formation of an excessive amount of fluid between the crown or whole of a tooth and its follicle, the follicle is thickened and an epithelial lining is formed which is the capsule of the cyst. Some writers, however, support the theory of proliferation and degeneration of rudiments of the enamel organ in the case of dentigerous as well as dental cysts. Dentigerous cysts often grow to a large size and are most common in rickety children.

As the bone cavity in which the cyst is growing enlarges and nears the surface of the bone, there is produced an activity of the periosteal osteoblasts, and new bone is laid down over the approaching cyst. The absorption from the inside, however, is the quicker operation, and the bone is finally reduced to egg shell thinness or may be totally absorbed in that area. This activity on the part of the bone cells gives us some of our diagnostic symptoms. In the early stages when the periosteal cells have been active for a short time, and the bone over the cyst is hard and dense, we feel on palpation a hard lump on the bone, later as the bone thins we get a characteristic egg-shell crackling on pressure, and later still when epithelial growth is covered only by periosteum, we feel a fluctuation on pressure.

Cyst formation differs from abscess formation in that the abscess is an infective reaction, caused by pyogenic bacteria, which breaks down normal tissue forming pus, which causes pressure and pain, all the signs of inflammation are present, and the reaction will run its course in a matter of hours. In the cyst formation the irritation is just sufficient to cause any embryonic epithelial cells in the area to resume function, and the process may continue for months, there is no pain, no pus formed and no breaking down of normal tissue, except bone absorption, which is a physiological process and not necrosis as in abscess and sinus formation.

In the case of abscess swelling, the pus under pressure bone beneath the periosteum. Delafield and Prudden suggest cystic process is again physiological in the laying down of forces the periosteum from the bone or pierces it, while the that the tissues in walling off a chronic abscess may do it so thoroughly that pus cannot escape, the abscess will become sterilized by its own toxins, and the result is a cyst.

The formation that the cyst most nearly resembles in its earlier stages is the epithelioma, but the epithelioma is of more rapid growth and is not connected with non-vital or missing teeth.

The patient who has a cyst will usually come to you somewhat frightened by stories of tumors and malignant growths. A swelling in some part of the face may be noticeable. On palpation you may find a small hard lump, quite a large swelling which will give egg-shell or parchment-like crackling on pressure, or a large swelling which will fluctuate. The patient probably will have noticed it some time before, but as it wasn't painful, didn't bother about it until it began to be noticeable.

On examination of the mouth you will probably find one or more devitalized teeth, or one or more missing teeth with a history of non-eruption, in region of cyst. With this data you may be sufficiently sure of your diagnosis to reassure the patient, but before attempting treatment the X-Ray should be used. It will probably show a sharply outlined area, darker at periphery than in body, it may be any shape.

With the X-Ray or by incision, you can classify the cyst as dental, dentigerous or multi-locular, and suggest surgical treatment, which is the same for all three types.

Inflammation and its sequelae, usually caused by traumatism, are the most common complications of cyst formation. If suppuration occurs it may cause the cyst to be confused with malignant growths. The period of development, presence of a carious or non-vital tooth, or absence of a tooth from the arch will probably lead to correct diagnosis.

Bibliography:—

For the material used in this thesis, the writer is indebted to the lecturers and clinicians of the R. C. D. S. as well as the following works: Aids to Surgery by Cunning and Joll; Elements of Surgical Diagnosis by Sir A. P. Gould; Oral Diseases and Malformations by Geo. Van I. Brown; Report on Odontomus by a Committee of the British Dental Association; Special Dental Pathology by Dr. G. V. Black; General Pathology by Delafield and Prudden.

Report of Research Committee

R. Gordon McLean, D.D.S., L.D.S., Toronto

Presented to Ontario Dental Association, Toronto, 1923.

We have not had much financial activity, owing to general financial conditions. It has been hard to get money from dentists, because dentists have had a very hard time to get money. However, we have been carrying on to the best of our ability.

We have during the year received three subscriptions, one from the Manitoba Dental Association of $200; one from the Calgary Dental Society of $50; and one from the Dental Study Circle, Montreal, of $25; Our total subscriptions to date are $13,354.51. Outstanding contributions to the amount of $1,064, were paid during the year, and there is still a balance outstanding of $1,860. In other words, $11,494.51 has been collected and deposited with the National Trust Company, and we are using the income from that amount.

Now the items we have to report on:

At the last Convention, Dominion Dental Council made a grant of $600 to the Foundation, (which has not yet been paid), with the stipulation that is to be apportioned for purposes of Dental Research among Dental Colleges in the agreeing Provinces. As Alberta did not wish to participate at present, owing to lack of facilities, the Executive have apportioned this this between Dalhousie and the Royal College of Dental Surgeons.

Last year we had the usual grant from the R. C. D. S. of $400.

We had a request from Longman's Green for permission to use some of Dr. Box's work, as published by the Foundation, in a new text book on Dental Surgery by Sir Francis Collyer of England.

Dental Summary and a Mexican Journal asked permission to publish some of Dr. Cummer's articles.

Dr. Cummer's articles were also published in Journal of American Dental Association.

Requests for Bulletins received from:

Dr. Harold DeW. Cross, Forsyth Dental Infirmary, Boston, Mass.

The Harlem Dental Society, New York, would like to have had 200 copies of Dr. Cummer's Bulletin so that every member might have one for a course of study.

Dr. J. G. Roberts, Buffalo, N. Y.

Dr. Howard Gallagher, Buffalo, N. Y.

Dr. Howard M. Hall, Kansas, Mo., wanted 200 copies of Dr. Box's Bulletin to use in connection with his Post Graduate course.

I am just giving you these to show that the work of the Foundation is being appreciated, and appreciated in a broad sense. I could give you a list from St. Louis to Boston and New York, and the different points of Canada, from where we have had requests for different bulletins that have been published by the Foundation.

NEW YORK

We are handing to the members of this Society Dr. Cummer's latest Bulletin "Combinations as an Aid in the Discovery of Fundamentals in Dentistry and other Sciences." Every man registering is entitled to a copy of one of these, and those not registering will have one mailed to them.

We feel that the Foundation is doing something for Dentistry that should be deeply appreciated. Research work is the foundation of our profession. The reason that we have fluctuated in our treatment so much in the last few years is because we have based those treatments so much on unscientific bases. The only way we can get those treatments standardized is to back them up with scientific research work, and we have to bank upon the profession to provide the funds to do it with. We have had considerable money given to us in this regard, but I hope we will have considerably more in the future. We really feel it is a most important work in our profession and as I said before, it is the basis of it.

Dr. Box has a new bulletin which is in the course of preparation. This bulletin will cost in the neighborhood of $800 or $1,000. We have had several men who have come forward, when we have been lacking in funds, and have offered us subscriptions, which went in without those men getting much credit for it. Those men are the backbone of the profession—they are putting something into it, and not figuring how much they can get out of it. These bulletins of Dr. Box's will be distributed in the next couple of months, and every member of the profession will have one mailed to him.

Dr. McLean then moved the adoption of this report, which was seconded by Dr. Husband, and *unanimously carried.*

Report of Public Dental Education Committee

W. B. Amy, D.D.S., L.D.S., Toronto.

Presented to Ontario Dental Association, Toronto, 1923.

Mr. Chairman and Gentlemen:

I wish to give you a short report of the activities of a committee appointed jointly by the Board of Directors of the Royal College of Dental Surgeons and the Board of Governors of the Ontario Dental Society for the special purpose of carrying on an Educational Campaign.

Recognizing that the press is the most powerful factor in the education of the public we decided to secure the co-operation of as many representative papers throughout the country as possible.

Nine bulletins written by outstanding dentists were submitted to the committee. These bulletins were carefully edited and given to the papers. One appearing each Saturday in thirty newspapers for nine weeks.

Another reason that actuated the Committee to launch the campaign was the individual attempts of certain dentists to ostensibly educate the public, but for their own ends.

In fact one of the excuses advanced by one of the dentists was that he was going to educate the public if the dental profession would not.

We judged that the education given by the dental profession as a whole was of much greater value to the public than individual efforts.

We believe that our work has not been in vain, but this we hope is only the beginning of what will be continued next year until the whole public of Canada will know how and why they should take care of their mouths and teeth.

It was agreed before the campaign was begun that the R. C. D. S. would assume one half of the expense of the campaign and the O. D. S. the other half. We have spent $2,099.26 to date.

We hope that this educational campaign will meet with your approval and that the Board of Directors of the R. C. D. S. and the Board of Governors of the O. D. A. will continue to co-operate along these lines.

In conclusion I would like to move the adoption of this report.

The motion was seconded by Dr. McDonagh, and *unanimously carried.*

Report of Administration of School of Dentistry

Wallace Seccombe, D.D.S., Toronto.

Presented to Ontario Dental Association, Toronto, 1923.

You will remember that in the Fall of 1919, 400 returned soldiers and others appled for registration in Dentistry in Ontario, and of these veterans 320 were accepted, and this large class has been with us until this Spring, when they hope to graduate. But this has meant very many serious problems for the Faculty and Board to meet.

It is interesting to note, Mr. President, that the peak of our attendance was in the Fall of 1920. We had then 888 students; the following session, 1921-22, there were 837 students; and this last session 726. A careful estimate has been made of the number of students who will register next year, and it is 476, so that next year we are right back to pre-war condition, of something less than 500 students. That estimate is made up as follows:

1st year— 58
2nd " — 58
3rd " — 84
4th " —106
5th " —170

Now the total tuition fees of the students during the past session were $23,000 less than the previous session, and on the basis of the estimated attendance that I have just made, there will be next year a further depreciation in fees of students of $50,000, compared with this past session.

So that you can readily see, gentlemen, that the Board will be required to meet a very difficult situation in regard to next session, and adjustments will have to be made in the Faculty and in relation to the expenditures on capital account to meet that situation.

Another matter I have been asked to report on is the question of Government assistance. You will remember that when these returned soldiers were with us, in the early days, it was necessary to have an Anatomical Department built in connection with the College, and the Ontario Government made a grant of $100,000 for this purpose. Since that time there have been annual grants to the College as follows:

1920-21—$13,029, 1921-22—$25,780,
1921-23—$25,000.

In addition to the $100,000 there have been annual grants amounting to $63,809, and these have enabled the College to defer the payment of the fees of war veterans in need of financial help. In fact, the entire grants have been expended in that. Promissory notes were taken from the returned soldiers, payable one year after graduation without interest up to that point, and of these amounts so loaned about $850 have been repaid at the present time. Many of these men have not yet been graduates for one year, and the amounts are not yet due, but it is very interesting to note that as these promises become due, the returned soldiers write in voluntarily and arrange for payment. Owing to the consideration of the Government we have been able to arrange this for the returned men, and therefore they have been eligible for assistance by the Alumni Association of the University. The University Alumni Association loans to veterans are available only to students in faculties where payment of fees is deferred.

There has been a suggestion by the Board of Directors that as the soldiers repay these loans the money be deposited in a special fund, and the possibility is suggested that such a fund will enable us in the years to come to provide a residence, so that the undergraduates while attending College will have the privilege of living in residence. The Board considers such a forward step essential if we are to surround the students with conditions which will help to mould them into men with good strong rugged characters.

Another question is that of raised standards. Along with other University Dental Departments and Colleges, we have adopted the Pre-Dental standard, so that the dental course now has as its foundation in the University Schools in the United States and Canada, five years beyond Junior Matriculation. Students outside of Ontario may take the first year as a Pre-Dental student in a Provincial University. Ontario students are required to take all five years at the R.C.D.S.

In relation to Matriculation, commencing this coming Fall Junior Matriculants will be required to have twelve papers, including Physics and Chemistry.

The subject of reciprocity with England has already been considered. So many of these returned soldiers desire to return to England to practise that the matter was taken up, and negotiations are now pending.

There is one other point I would like to say a word upon, and that is the question of Extension Lectures and Clinics, and also that of Post Graduate work.

Regarding Extension Lectures, we believe many dentists do not realize that there is a provision to secure from the College a member of the staff on any subject that licentiates may select, to lecture to the dentists in their local society. There is an honorarium provided by the College, and the only expense to the local association is the transportation. During the past year there were given fifteen lectures:—5 at Peterboro, 3 at London, 2 at Kitchener, 2 at Ottawa, 1 at Simcoe, 1 at Preston, and 1 at Brantford, and the hope is expressed that during the coming year you men will interest the dentists throughout the province, that they may request teachers from the College to provide the programme at local meetings.

A few days ago it was suggested to the Board that these lectures and clinics, instead of being for one evening, extend over a few days, so that dentists will close up their offices during that time, and concentrate and have a more intensive course on that particular subject.

Regarding the Post Graduate course this year from Monday, the 17th of September, to Saturday, the 22nd. That is the week following the American Dental Association meeting at Cleveland. This will give five full days of teaching, and the following courses will be given. Registrants will be permitted to take the whole course, or part, as they desire.

Course A—2½ days—Preventive Dentistry and Physical Diagnosis.

Course B—2½ days—Pathology and Periclasia.
" C—2½ " —Operative Dentistry and Dental Diagnosis.
" D—2½ " —Anaesthesia and Oral Surgery.
" E—2½ " —Crown and Bridge Work.
" F—2½ " —Partial Denture Prothesis.
" G—5 " —Full Denture Prothesis.

The fees will be: to those Licentiates of Ontario who are not in arrears with their annual fees, $10; and to all others $25.

There is another point, Mr. President, and that is in relation to Convocation. Other years, you will remember, there has been a special Dental Convocation. This year an arrangement has been made that we will hold our Commencement Exercises, when the L.D.S. title is given to graduates, on Friday of next week, in Convocation Hall. This will not be a University Convocation as in previous years, but the degrees in Dentistry will be conferred at the time of the regular Convocation of the University on the 8th of June.

Editorial

EDITOR:
A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

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Vol. XXXV TORONTO, SEPTEMBER, 1923 No. 9

A Problem for the British Dentist

By an act of the British Parliament in 1922 every person who had in any way practised dentistry in Brifain was placed on the dental register. Many of these have had little dental experience and most of them no dental education. The public is unable to distinguish these recent acquisitions to the register from the qualified because they are permitted to call themselves dentists. Some of them, recognizing their limitations, are asking that some qualified persons should give them instruction. Private dentists dare not give such instruction lest they be thought to be encouraging the unqualified. If the people want these unqualified, let them have them, it is none of the qualified's business if they are incompetent. It would be still worse if a qualified dentist gave such instruction and charged for it. The unqualified have approached the teaching bodies for courses in the practice of dentistry. Mostly, the proposal has not been entertained, because it does not seem logical for a school to give short-cut methods of dental education to men who will go out to compete with their graduates who have spent four years in college. On the other hand, these unqualified will always be classed as dentists and will help to set the public estimation of dentistry. On this and other grounds one or more dental schools are going to give short courses to the unqualified recently put on the register.

Romance and the Pharmacopoeia

A recent paper by Dr. Ray Edridge on "Romance and the Pharmacopoeia," deals with the career of Dr. Thomas Dover (1660-1742), famous for his powder and notorious for his piracy on the Spanish Main. Dover's voyage round the world in his expedition captained by Woodes-Rogers is chronicled in the journal of the latter worthy, and makes extraordinary reading when we consider the heads of the expedition were respectable members of society in their own country. Not the least interesting episode was the rescue of Alexander Selkirk (the supposed original of Robinson Crusoe) from Juan Fernandez. Dover's quarrels with his fellow-practitioners were endless. His science may have been questionable, particularly his predilection for quicksilver, "the greatest gift of God in the whole materia medica," but his popularity was considerable, and although his detractors' very names are dusty and forgotten, Dover himself still lives in the Pharmacopoeia by reason of his powder. Presumably it was not quite the same powder that he fired on the Spanish Main.—*Dental Record.*

It is of historical interest to know that Waite's Local Anaesthetic has passed its thirty-first year, and that for the past twenty-four years it has been manufactured in Canada; originally in Montreal; later moving to Toronto and at a still later date to Niagara Falls and finally locating in their own plant at Fort Erie.

During the entire time the manufacture of the anaesthetic has been under the personal supervision of Dr. R. B. Waite, the originator. He realized that the toxic effects, soreness and after-pain resulted from the lack of pure reliable drugs in a stable aseptic base. With the courage of a pioneer he set out to produce a non-toxic, ready to use anaesthetic, the result of this is Waite's Local Anaesthetic.

Dominion Dental Council

Result of Examinations, 1923

The following have passed their D.D.C. Examination in Operative Dentistry (paper): A. W. M. Allan, Ernest F. Allen, A. L. Baker, E. B. Baker, P. A. Beattie, Chas. L. Beck, S. R. Bird, Thos. L. Blight, R. N. G. Brown, J. C. Blakey, J. A. Boyd, R. A. Bradford, A. P. Brennan, L. H. Cameron, P. H. O. Canniff, W. F. Clark, R. W. C. Clements, Alfred Clermont, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, W. M. Coutts, H. H. Cowen, C. C. Craigie, E. M. Crough, D. L. Curtis, F. J. A. Daly, F. E. Dodds, S. K. Donald, J. F. Edgecombe, J. G. Elsey, W. S. Flora, W. L. Fluck, J. C. Fullerton, R. J. Gawley, A. W. G. Good, J. R. Graham, G. T. Greig, E. W. Grenzeback, C. B. Hallett, W. S. Hamilton, L. A. Hare, M. P. Heather, H. H. Heal, J. A. Hillier, D. Hindson, G. A. Hodgson, M. F. Hogan, E. M. Honey, Robt. Hurton, P. A. Jackson, G. M. Jackson, J. E. Jackson, J. G. Johnston, K. P. Johnston, E. R. Kay, L. D. Kay, V. Kelly, F. P. Kenny, L. A. Kilburn, M. G. Killins, J. H. Langtry, H. J. Lawrence, G. R. Lawson, W. R. Louden, M. A. Maloney, S. C. Mann, R. L. Miles, W. A. Miller, J. G. Mills, W. M. Montgomery, Chas. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, N. S. MacDonald, J. L. MacDougall, D. L. MacKenzie, W. F. MacKenzie, F. J. MacLean, D. MacLellan, J. W. MacLeod, D. S. MacPhee, G. R. MacRitchie, D. W. McCord, H. C. McDonald, J. A. McGinnis, H. A. McIntyre, J. A. McKinnon, H. T. McLachlan, W. C. McLean, C. S. McLeod, C. D. McLeod, A. J. McLellan, D. B. McMillan, W. C. McNichol, F. J. Netherton, R. L. A. Noonan, A. B. Pickering, J. G. Pullar, W. J. Riley, G. A. Robinson, L. P. Roop, B. R. Ross, P. J. Ross, J. A. Sampson, B. N. Shlain, W. L. Smith, G. C. Smith, H. H. Smith, F. R. Smith, F. E. Sproule, A. C. Steeves, M. S. Tucker, C. A. Tanton, A. W. Taylor, H. A. Thompson, C. J. Towner, W. L. Trueman, Chas. Usher, F. W. Vivian, G. A. C. Wally, E. Wallace, L. D. Walmsley, R. C. Wansbrough, E. McK. Wansbrough, J. C. Ward, A. W. Waring, H. H. Weagant, L. J. Westlake, W. E. Wessels, J. M. Williams, F. St. J. Wilson, R. H. Wilson, L. M. Winter, A. R. Woods, R. E. Wyatt.

The following have passed their D.D.C. Examination in Prosthetic Dentistry (paper): A. W. M. Allan, Ernest F. Allen, A. L. Baker, E. B. Baker, P. A. Beattie, C. L. Beck, S. R. Bird, A. M. Bisnett, T. F. Blight, D. M. Botting, R. N. G. Brown, J. C. Blakey, J. A. Boyd, R. A. Bradforn, R. P. Brennan, W. M. Breslin, R. W. Bristow, L. H. Cameron, P. H. O. Canniff, D. O. Carroll, W. C. Carruthers, C. A. Cathro, W. F. Clark, C. J. Clayton, R. W. C. Clements, A. Clermont, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, W. M. Coutts, H. H. Cowen, C. C. Craigie, O. L. Croft, E. M. Crough, D. L. Curtis, F. J. A. Daly, F. E. Dodds, S. K. Donald, J. H. Downer, J. E. Dunham, E. M. Dutton, J. F. Edgecombe, J. G. Elsey, W. S. Flora, W. L. Fluck, J. C. Foote, J. C. Fullerton, R. J. Gawley, W. R. Godard, A. W. G. Good, J. R. Graham, G. T. Greig, E. W. Grenzeback, C. B. Hallett, W. S. Hamilton, L. A. Hare, W. A. A. Haughton, M. P. Heather, H. H. Heal, V. R. Hill, J. A. Hillier, G. A. Hodgson, M. F. Hogan, R. Hurton, P. A. Jackson, G. M. Jackson, J. E. Jackson, J. G. Johnstone, K. P. Johnston, E. R. Kay, L. D. Kay, V. Kelly, F. P. Kenny, L. A. Kilburn, M. G. Killins, M. Kline, J. H. Langtry, H. J. Lawrence, G. R. Lawson, W. J. M. Lloyd, D. D. Lloyd, W. R. Louden, M. A. Maloney, S. C. Mann, R. L. Miles, W. A. Miller, J. G. Mills, W. M. Montgomery, C. T. More, C. N. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, N. S. MacDonald, J. L. MacDougall, D. L. MacKenzie, W. F. MacKenzie, F. J. MacLean, D. MacLellan, J. W. MacLeod, D. S. McPhee, G. R. MacRitchie, D. W. McCord, H. C. McDonald, G. A. McGinnis, H. A. McIntyre, J. A. McKinnon, H. T. McLachlan, W. C. McLean, C. S. McLeod, C. D. McLeod, A. J. McLellan, D. B. McMillan, W. C. McNichol, F. J. Netherton, R. A. Newlove, R. L. A. Noonan, W. C. Osborne, A. B. Pickering, J. G. Pullar, W. J. Riley, G. A. Robinson, L. B. Roop, B. R. Ross, P. J. Ross, C. L. Rowland, J. A. Sampson, R. L. Scharff, R. P. Shepherd, B. N. Shlain, G. A. Sinclair, W. L. Smith, G. C. Smith, H. H. Smith, F. R. Smith, M. E. Spence, F. E.

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Passed in Metallurgy only: M. A. Bregman, H. A. Dowler.

The following have passed their D.D.C. Examination on Anaesthetics: A. W. M. Allan, E. F. Allen, A. L. Baker, E. B. Baker, P. A. Beattie, Chas. L. Beck, S. R. Bird, T. F. Blight, D. M. Botting, R. N. G. Brown, J. C. Blakey, J. A. Boyd, R. A. Bradford, A. P. Brennan, W. M. Breslin, R. W. Bristow, L. H. Cameron, P. H. O. Canniff, C. A. Cathro, W. F. Clark, C. J. Clayton, A. Clermont, C. B. H. Climo, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, W. M. Coutts, H. H. Cowen, C. C. Craigie, H. S. Crosby, D. L. Curtis, F. J. A. Daly, F. E. Dodds, S. K. Donald, H. A. Dowler, H. C. Dunlop, J. E. Dunham, E. M. Dutton, J. F. Edgecombe, J. G. Elsey, W. S. Flora, W. L. Fluck, J. C. Foote, J. C. Fullerton, R. J. Gawley, W. R. Godard, A. W. G. Good, J. R. Graham, L. M. Gray, G. W. Greacen, G. T. Greig, E. W. Grenzeback, C. B. Hallett, W. S. Hamilton, W. A. A. Haughton, M. P. Heather, H. H. Heal, V. R. Hill, J. A. Hillier, D. Hindson, G. A. Hodgson, M. F. Hogan, R. Hurton, P. A. Jackson, G. M. Jackson, C. R. Jarvis, J. G. Johnston, E. R. Kay, V. Kelly, F. P. Kenny, L. A. Kilburn, M. G. Killins, J. H. Langtry, H. J. Lawrence, G. R. Lawson, W. J. M. Lloyd, W. R. Louden, J. W. Mallabar, M. A. Maloney, S. C. Mann, R. L. Miles, W. A. Miller, J. G. Mills, Chas. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, N. S. MacDonald, J. L. MacDougall, D. L. MacKenzie, Wm. F. MacKenzie, F. J. MacLean, D. MacLellan, J. W. MacLeod, D. S. MacPhee, G. R. MacRitchie, D. W. McCord, H. C. McDonald, J. A. McGinnis, H. A. McIntyre, J. A. McKinnon, H. T. McLachlan, W. C. McLean, C. S. McLeod, C. D. McLeod, A. J. McLellan, D. B. McMillan, F. J. Netherton, R. L. A. Noonan, A. B. Pickering, J. G. Pullar, W. J. Riley, G. A. Robinson, L. B. Roop, B. R. Ross, P. J. Ross, J. A. Sampson, R. L. Scharff, R. P. Shepherd, B. N. Shlain, W. L. Smith, G. C. Smith, H. H. Smith, F. R. Smith, F. E. Sproule, A. C. Steeves, H. R. Stewart, M. S. Tucker, W. J. Tackaberry, C. A. Tanton, A. W. Taylor, H. A. Thompson, J. E. Toole, C. J. Towner, W. L. Trueman, C. Usher, J. G. Walker, G. A. C. Wally, E. Wallace, R. C. Wansbrough, E McK. Wansbrough, J. C. Ward, A. W. Waring, H. H. Weagant, L. J. Westlake, W. E. Wessels, G. W. Whyte, J. M. Williams, F. St C. Wilson, R. H. Wilson, L. M. Winter, A. R. Woods, R. E. Wyatt.

The following have passed their D. D. C. examination in Pathology and Bacteriology: A. W. M. Allan, E. F. Allen, A. B. Anthony, E. B. Baker, P. A. Beattie, C. L. Back, A. M. Bisnett, D. M. Botting, M. A. Bregman, R. N. G. Brown, J. C. Blakey, J. A. Boyd, R. A. Bradford, A. P. Brennan, W. W. Breslin, R. W. Bristow, L. H. Cameron, P. H. O. Canniff, D. O. Carroll, W. F. Clark, R. W. C. Clements, A. Clermont, J. L. Connell, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, H. H. Cowen, O. L. Croft, E. M. Crough, D. L. Curtis, R. R. Dalgleish, F. J. A. Daly, F. E. Dodds, S. K. Donald, H. C. Dunlop, J. E. Dunham, E. M. Dutton, J. F. Edgecombe, W. S. Flora, J. C. Foote, R. Forbes, H. R. Fraser, J. C. Fullerton, R. J. Gawley, A. W. G. Good, J. R. Graham, G. T. Greig, E. W. Grenzeback, L. I. Grono, C. B. Hallett, W. S. Hamilton, L. A. Hare, S. Harper, W. A. A. Haughton, H. N. Heal, J. A. Hallier, G. A. Hodgson, E. M. Honey, R. Hurton, G. M. Jackson, J. E. Jackson, C. R. Jarvis, J. G. Johnston, A. F. Jupp, E. R. Kay, L. D. Kay, V. Kelly, L. A. Kilburn, H. J. Lawrence, G. R. Lawson, W. J. M. Lloyd, W. R. Louden, M. A. S. Magee, J. W. Mallabar, S. C. Mann, R. L. Miles, J. G. Mills, W. M. Montgomery, C. T. More, C. N. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, G. G. MacDougall, J. L. MacDougall, C. E. MacIntosh, D. L. MacKenzie, W. F. MacKenzie, F. J. MacLean, D. MacLellan, J. W. MacLeod, D. D. MacMillan, D. S. MacPhee, G. R. MacRitchie, H. C. McDonald, G. A. McGinnis, H. A. McIntyre, J. A. McKinnon, C. S. McLeod, W. C. McN[illegible]ol, R. L. A. Noonan, A. B. Pickering, J. G. Pullar, W. J. Riley, B. R. Ross, P. J. Ross, C. L. Rowland, J. A. Sampson, R. L. Scharff, R. P. Shepherd, B. Shaffner, B. N. Shlain, G. A. Sinclair, W. L. Smith, H. H. Smith, F. R. Smith, E. S. Somerville, F. E. Sproule, A. C. Steeves, H. R. Stewart, E. D. Stinson, M. S. Tucker, W. J. Tackaberry, C. A. Tanton, A. W. Taylor, J. E. Toole, J. C. Trainor, W. L.Trueman, C. Usher, F. W. Vivian, J. G. Walker, G. A. C. Wally, E. Wallace, L. D. Walmsley, J. L. Walsh, R. C. Wansbrough, E. McK. Wansbrough, J. C. Ward, A. W. Waring, H. H. Weagant, G. W. Whyte, J. M. Williams, W. StC. Wilson, R. H. Wilson, L. M. Winter, A. R. Woods, R. E. Wyatt.

The following passed in Bacteriology only: W. C. Carruthers, C. J. Clayton, H. A. Dowler, G. W. Greacen, M. Kline, D. D. Lloyd, W. C. Osborne, J. S. Wilkinson.

The following have passed their D. D. C. examinations in Physics & Chemistry: H. P. Adams, G. W. Allan, W. S. Anderson, E. B. Baker, C. Balmer, D. M. Botting, J. C. Blakey, J. A. Boyd, A. P. Brennan, W. W. Breslin, L. H. Cameron, J. M. Campbell, A. McL. Campbell, D. O. Carroll, C. A. Cathro, A. R. Cooke, H. M. Cooke, K. M. Coons, R. F. H. Croft, F. J. A. Daly, W. G. Dawson, F. W. Doan, H. A. Dowler, A. A. Dunlop, E. M. Dutton, J. F. Edgecombe, H. T. Fallaise, E. J. Fisher, S. Greenberg, E. W. Grenzeback, L. M. Grose, E. G. Hargreaves, E. J. Henderson, A. E. Higgins, J. E. Jackson, L. A. Johnston, A. F. Jupp, V. Kelly, F. P. Kenny, H. R. Kerr, M. G. Killins, G. R. Lawson, D. D. Lloyd, M. A. S. Magee, J. W. Mallabar, J. P. Markinski, J. G. Mills, W. M. Montgomery, W. M. Myles, G. S. MacDonald, D. L. MacDonald, J. L. MacDougall, D. MacLellan, D. D. MacMillan, D. S. MacPhee, J. S. McKinnon, H. T. McLachlan, W. C. McNichol, R. L. A. Noonan, W. C. Osborne, A. B. Pickering, J. A. Sampson, B. N. Shlain, H. H. Smith, C. J. Towner, L. D. Walmsley, H. H. Weagant, W. G. Willigar, L. M. Winter, W. M. Young.

Passed in Physics only: V. M. Lloyd.

The following have passed their D. D. C. examination in Physiology & Histology: H. P. Adams, Lois Adams, G. W. Allan, W. S. Anderson, E. B. Baker, C. Balmer, J. C. Blakey, J. C. Boyd, A. P. Brennan, L. C. Byron, L. H. Cameron, J. M. Campbell, A. McL. Campbell, C. A. Cathro, W. F. Clark, H. M. Cooke, K. M. Coons, S. H. Corben, F. H. Cowan, R. F. H. Croft, F. J. A. Daly, W. G. Dawson, F. W. Doan, W. C. Dowell, H. A. Dowler, J. F. Edgecombe, H. T. Fallaise, W. J. Fisher, S. Greenberg, E. W. Grenzeback, L. M. Grose, W. S. Hamilton, E. G. Hargreaves, E. J. Henderson, A. E. Higgins, J. E. Jackson, A. F. Jupp, H. R. Kerr, L. A. Kilburn, M. Kline, G. R. Jawson, J. J. Lesco, T. H. Lewis, J. W. Mallabar, J. P. Markinski, W. M. Moyer, W. M. Myles, G. S. MacDonald, D. L. MacDonald, J. L. MacDougall, D. MacLellan, W. D. MacLeod, D. S. MacPhee, J. A. McKinnon, W. C. McNichol, M. H. Nicholson, W. C. Osborne, J. F. Porter, B. R. Ross, J. A. Simpson, F. H. Shepherd, B. N. Shlain, H. H. Smith, L. D. Walmsley, H. H. Weagant, L. J. Westlake, W. G. Willigar, L. M. Winter, W. M. Young.

The following passed in Histology only: W. W. Breslin, C. F. Garland, J. R. Hogg, J. R. Ingleclen, J. O. Sabourin, S. E. Stark, R. J. Stewart.

The following have passed their D. D. C. Examination in Anatomy: H. P. Adams, Lois Adams, G. W. Allan, W. S. Anderson, E B. Baker, C. Balmer, D. M. Botting, J. C. Blakey, A. P. Brennan, W. W. Breslin, L. C. Byron, L. H. Cameron, J. M. Campbell, A. McL. Campbell, W. C. Carruthers, C. A. Cathro, W. F. Clark, T. L. Coleman, F. H. Cowan, R. F. H. Croft, F. Cuttell, F. J. A. Daly, W. G. Dawson, F. W. Doan, W. C. Dowell, H. A. Howler, A. A. Dunlop, J. F. Edgecombe, H. T. Fallaise, E. J. Fisher, C. T. Garland, S. Greenberg, E. W. Grenzeback, L .M. Grose, W. S. Hamilton, E. G. Hargreaves, E. J. Henderson, A. E. Higgins, J. R. Ingleclen, J. E. Jackson, L. A. Johnston, V. Kelly, H. R. Kerr, G. R. Lawson, S. J. Lesco, T. H. Lewis, D. D. Lloyd, N. A. W. Losada, J. P. Markinski, W. B. Milburn, G. S. MacDonald, D. L. MacDonald, J. T. MacDougall, W. D. MacLeod, D. S. MacPhee, W. M. McConkinville, W. C. McNichol, M. H. Nicholson, W. C. Osborne, J. A. Sampson, F. H. Shepherd, B. N. Shlain, H. H. Smith, R. H. Stanford, S. E. Stark, R. J. Stewart, H. H. Weagant, J. L. Westlake, J. E. Wilkes, W. G. Willigar, L. M. Winter.

The following have passed their D. D. C. examination in Jurisprudence and Ethics: A. W. M. Allan, E. F. Allen, J. S. Bagnall, E. B. Baker, P. A. Beattie, C. L. Back, S. R. Bird, T. F. Blight, R. N. G. Brown, J. C. Blakey, J. A. Boyd, R. A. Bradford, A. P. Brennan, L. H. Cameron, P. H. O. Canniff, W. F. Clark, R. W. C. Clements, A. Clermont, C. B. H. Climo, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, W. M. Coutts, H. H. Cowen, C. C. Craigie, H. S. Crosby, E. N. Crough, D. L. Curtis, F. J. A. Daly, F. E. Dodds, S. K. Donald, J. F. Edgecombe, J. G. Elsey, W. S. Flora, W. L. Fluck, J. C. Fullerton, R. J. Gawley, A. W. G. Good, J. R. Graham, G. T. Greig, E. W. Grenzeback, C. B. Hallett, W. S. Hamilton, L. A. Hare, H. H. Heal, J. A. Hillier, D. Hindson, G. A. Hodgson, M. F. Hogan, E. M. Honey, R. Hurton, G. M. Jackson, J. E. Jackson, C. R. Jarvis, J. G. Johnstone, L. D. Kay, V. Kelly, F. P. Kenny, L. A. Kilburn, M. G. Killins, J. H. Langtry, H. J. Lawrence, G. R. Lawson, W. J. M. Lloyd, W. R. Louden, M. A. Maloney, S. C. Mann, R. L. Miles, W. A. Millar, J. G. Mills, W. M. Montgomery, C. N. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, N. S. McDonald, J. L. MacDougall, D. L. MacKenzie, W. F. MacKenzie, F. J. MacLean, D. MacLellan, J. W. MacLeod, D. S. MacPhee, G. R. MacRitchie, D. W. McCord, H. C. McDonald, J. A. McGinnis, H. A. McIntyre, J. A. McKinnon, H. T. McLachlan, W. C. McLean, C. S. McLeod, C. D. McLeod, A. J. McLellan, D. B. McMillan, W. C. McNichol, F. J. Netherton, R. L. A. Noonan, A. B. Pickering, J. G. Pullar, W. J. Riley, G. A. Robinson, B. R. Ross, P. J. Ross, J. A. Sampson, B. N. Shlain, W. L. Smith, G. C. Smith, H. H. Smith, F. R. Smith, E. S. Somerville, F. E. Sproule, A. C. Steeves, M. S. Tucker, C. A. Tanton, A. W. Taylor, H. A. Thompson, C. J. Towner, W. L. Trueman, C. Usher, F. W. Vivian, G. A. C. Wally, E. Wallace, L. D. Walmsley, J. L. Walsh, R. C. Wansbrough, E. McK. Wansbrough, J. C. Ward, A. W. Waring, H. H. Weagant, L. J. Westlake, W. E. Wessels, J. M. Williams, F. St. C. Wilson, R. H. Wilson, L. M. Winter, A. R. Woods, R. E. Wyatt.

The following have passed their D.D.C. examination on Materia Medica and Therapeutics: G. W. Allan, W. S. Anderson, A. B. Anthony, E. B. Baker, C. L. Beck, D. M. Botting, M. A. Bregman, R. N. G. Brown, J. C. Blakey, J. A. Boyd, A. P. Brennan, W. W. Breslin, R. W. Bristow, L. H. Cameron, J. M. Campbell, P. H. O. Canniff, D. O. Carroll, C. A. Cathro, W. F. Clark, C. J. Clayton, A. R. Cooke, H. M. Cooke, A. W. Coon, S. H. Corben, H. H. Cowen, R. F. H. Croft, E. M. Crough, R. R. Dalgleish, F. J. A. Daly, F. W. Doan, F. E. Dodds, S. K. Donald, H. A. Dowler, J. E. Dunham, E.M Dutton, J. F. Edgecombe, H. T. Fallaise, J. C. Foote, R. Forbes, H. R. Fraser, J. C. Fullerton, W. R. Godard, S. Greenberg, G. T. Greig, E. W. Grenzeback, L. I. Grono, L. M. Grose, L. A. Hare, E. G. Hargreaves, S. Harper, W. A. A. Haughton, H. N. Heal, E. J. Henderson, A. E. Higgins, V. R. Hill, J. A. Hillier, G. A. Hodgsom, E. M. Honey, R. Hurton, P. A. Jackson, G. M. Jackson, J. G. Johnston, E. R. Kay, V. Kelly, H. R. Kerr, H. J. Lawrence, G. R. Lawson, S. J. Lesco, D. D. Lloyd, W. R. Louden, M. A. S. Magee, J. W. Mallabar, J. P. Markinski, J. G. Mills, W. M. Montgomery, C. T. More, C. N. Morphy, R. W. Morrison, W. M. Moyer, H. A. Mutton, W. M. Myles, G. G. MacDougall, C. E. MacIntosh, D. L. MacKenzie, Wm. F. MacKenzie, D. McLellan, J. W. MacLeod, D. S. McPhee, H. C. McDonald, J. A. McKinnon, H. T. McLacklan, W. C. McLean, C. S. McLeod, W. C. McNichol, R. L. A. Noonan, W. C. Osborne, J. G. Pullar, W. J. Riley, P. J. Ross, C. L. Rowland, J. A. Sampson, R. L. Scharff, R. P. Shepherd, B. Shaffner, B. N. Shlain, G. A. Sinclair, W. L. Smith, H. H. Smith, F. R. Smith, M. E. Spence, F. E. Sproule, A. C. Steeves, H. R. Stewart, E. D. Stinson, M. S. Tucker, W. J. Tackaberry, C. A. Tanton, A. W. Taylor, J. E. Toole, C. J. Towner, J. C. Trainer, C. Usher, F. W. Vivian, J. G. Walker, G. A. C. Wally, E. Wallace, L. D. Walmsley, R. C. Wansbrough, E. McK. Wansbrough, A. W. W. Waring, H. H. Weagant, G. W. Whyte, J. S. Wilkinson, J. M. Williams, F. St. C. Wilson, L. M. Winter, R. E. Wyatt.

The following have passed their D.D.C. examination in Orthodontia: A. W. M. Allan, E. F. Allen, A. L. Baker, E. B. Baker, P. A. Beattie, C. L. Beck, S. R. Bird, T. F. Blight, R. N. C. Brown, J. C. Blakey, J. A. Boyd, R. A.Bradford, A. P. Brennan, L. H. Cameron, P. H. O. Canniff, W. F. Clark, R. W. C. Clements, A. Clermont, C. B. H. Climo, A. R. Cooke, H. M. Cooke, A. W. Coon, S. R. Corben, W. M. Coutts, H. H.

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Dominion Dental Journal

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ORIGINAL COMMUNICATIONS

Faculty of Dentistry of Dalhousie University

Report of the Acting Dean to the Nova Scotia Dental Society at its Annual Meeting, July 25-26-27, 1923.

F. W. Ryan, Acting Dean

On behalf of the Faculty of Dentistry, I would report that the Dental College has experienced another very successful year. There were in all sixty-eight students in attendance which taxed to the full the facilities of our apartments and equipment and entailed assiduous attention on the part of our limited staff of instructors.

A helpful spirit of cooperative endeavour characterized the relations of the staff and the students, and while we regret that all students did not reach the desired goal of the year, we believe their failure was not accompanied by any feeling of resentment toward their teachers.

It has never been claimed that the course at Dalhousie is easy. Its demands upon the students are fairly exacting, but quite within the reach of the average student if he chooses to make the necessary effort and give it the necessary attention and application.

Perhaps it would be interesting in this connection to review the history of the class that graduated this spring—This class numbering 30 students, began their dental course in the session of 1919-20; at the end of the 1st year 8 students were found short of the standard, so that in the 2nd year 1920-21 there were 22 in attendance. In the next year 1921-22, five more were missing, leaving but 17 students in the class. In the last session—one of these was debarred, leaving but sixteen of the original thirty in the final year. A student of a former class, who had lost a year, joined this class for his final year—thus making 17 graduates.

It will thus be seen that nearly 50% of this class failed to reach goal.

It was surely a commendable effort on the part of this Association to endeavour to add to the other educational institutions of the Province, a school wherein the youth of our land might obtain, if they so desired, satisfactory instructions in the principles and practice of this highly technical specialty, to which we here assembled owe allegiance and which we believe has so great an influence upon the health, happiness and well-being of our fellows.

There can be no question but the school has been a potent factor in the professional development of our profession and in an enlightened opinion regarding it, but while it has served to accentuate the conviction that Dentistry is an important agent in the service of health, it has also been used by innuendo to serve the ends of those who desire to profit by such protection as the law provides, but who for sundry reasons are averse to attaining the standard of professional proficiency which those laws demand, resulting as you are aware in a change in the law, by which for a time at least the standard of professional qualification for registration in this province was very materially lowered.

While this incident is to be regretted in that it admits to the ranks of legally registered dentists men who had hitherto not complied with the required standard, it is perhaps more to be regretted in that it indicates on the part of the legislators of this province a lack of appreciation of the effort being made to maintain a place in the ranks of those progressive communities that are pressing forward toward the realization of the conception that the health of the people is a public trust—that the subject of education in matters that effect the health of the people, is not a matter for private enterprise or commercial exploitation.

The day of the Commercialized Professional School organized to make money by charging students more than it costs to educate them is gone and is supplanted by the idea that it is the duty of the school to give more than it takes from the student.

We were fortunate in having the administration of our school taken over by the University as soon as the need of such an institution was made manifest. It is difficult to see how the financial problem could have been otherwise solved—the income from the fees of a Dental student today does not nearly meet the cost of his education. The extra revenue is derived from Government grants or subsidies, from endowments of public spirited citizens or other philanthropic benefactions.

There are thus three (3) vitally concerned parties in the education of a dentist:—

1st the Student, 2nd. The Public, and 3rd. The School.

The 1st party, the student, pays partly in money—largely in time and application to prepare himself for his life's work and he is entitled to the rewards which should follow the application of his skill and knowledge to the service of humanity.

The 2nd party, the public: pays and is entitled to receive the reward of its investments, the services of a well informed, highly trained and skillful servant. These two parties on the one hand contract with the

3rd party, The College: to produce, in lieu of the above mentioned considerations, a well informed, highly trained, cultured professional servant to perform certain services of which humanity stands in need. It is therefore the duty of the college not only to produce such a product but to reject such material as does not measure up to the required standard of the product.

We have perhaps reason to be pleased with the measure of success that has attended our efforts, for the recognition our school has received and the position it has won among similar institutions on this continent.

We realize of course that we are greatly handicapped. As yet no public recognition has been vouchsafed to us in the way of grants or endowments. The University is doing what it can for us out of its meagre resources—that is meagre in comparison with the demands upon it, and the staff is contributing its time and labour with inadequate remuneration.

The Medical Faculty has received a vitalizing impulse through the Carnegie-Rockefeller Endowments, but no such windfall has dropped to us.

Nevertheless, notwithstanding the failure of the public to assist us financially, we are carrying on and doing the best we can. Each year sees additional equipment and facilities for imparting instruction in the way of charts, models, technic appliances. We are encouraged by the attitude of our students, by the approbation of the Carnegie Commission of Experts, and by their assurance that we have started right, that our standards are just; our aims high; our motives pure —and if, as we believe, the reward of honest effort is sure

—then if we as an Association will stand behind our school —be loyal to it and take council together in its interest, we may look forward with confidence to the fruition of our hopes concerning it.

A Passing Visit to Edinburgh Dental Hospital

A. E. Webster, L.D.S., M.D.S., M.D.

Edinburgh Dental Hospital and School is one of the oldest and best known in the Kingdom. It is situated among the buildings of the University being especially close to those departments in which special courses are taken. In contrast with the American plan of Dental Education, British Dental Education runs in about four parts. The University requirement, the Medical requirement, the preceptor or mechanical requirement. A candidate must see to it that the conditions of all four are fulfilled before he presents himself for a licensing examination. It must be borne in mind that the examining body or licensing body consists of a body acceptable to the general medical and dental councils. There is usually an examining and licensing body associated with each teaching body. All the teachers' courses must be acceptable to the examining body before their candidates will be admitted for examination.

Students at Edinburgh may take their mechanical training within the walls of the hospital and thus avoid the need of a private tutor or preceptor. The lectures in science as well as Anatomy, Physiology etc., may be taken in the University. Medicine, Surgery and Pathology being taken at the Royal Infirmary.

The Hospital like many other institutions, has found itself with more students than it had accommodation for. While it began with number 31 Chamber Street it has taken in numbers 30 and 32. Two of these buildings were residences while the senior stopping room, museum and lecture room are located in the two top flats of a building erected for educational purposes. This separates the junior and senior stopping rooms. Number 31 Chamber Street has the mechanical laboratory stretching across the back part of both basements. This is a good sized room in which all the mechanical work of all the years is done. The mechanical work for infirmary practice is done here by the students who are learning mechanics at this time. Senior and Junior students work alternate months in the stopping room and mechanical laboratory. The idea of students who are in the mechanical department doing the mechanical work for students' patients who are in the infirmary, has been in vogue for over twenty-five years in Edinburgh. In other schools a number of regular dental mechanics are employed to do this work. The mechanical students only doing technique work while in the laboratory. As a rule non-graduates have charge of such laboratories.

During our visit the regular examinations were in progress. These are no five o'clock tea performances. No matter what the candidate's former standing has been nor what his school standing is he must pass the examination for which he is now sitting or he fails. If he should fail on his written papers in medicine, surgery and pathology he is not allowed to take his orals in these subjects, nor is he allowed to come up for his dental examinations. These examinations are a great weeding process because a young man is given full liberty to make a D. F. of himself all term and then held real tightly at his final. Candidates who haven't sense enough to study without the stimulus of a quiz every morning do not consist of the kind of metal of which professional men ought to be made, so they usually get ploughed. There are both written and practical examinations on all subjects. In Operative procedures each candidate is given a patient who requires several operations and he must choose what he wishes to do in the allotted time of three hours given him. Upon his judgment, diagnosis and treatment, he passes or fails. The written examination papers which we saw were not too difficult but the oral might be much harder.

The Dean advised us that candidates from America who applied for their examinations usually found themselves unable to fill out the requirements in Anaesthetics, Surgery and Medicine. Before a candidate comes up for examinations he must present a certificate from each teacher stating how many sessions were given in a course and how many the candidate attended. When it is demanded that a candidate must attend one hundred periods in clinical surgery and the same number in clinical medicine before he may come up for examination it is little wonder that the American Dental Graduate cannot get his certificate signed. A general certificate by the Registrar is not sufficient, it is the teacher's certificate that counts.

Herewith we append the amount of clinical work done by two candidates chosen at random from the books of this year. One is a woman candidate and the other is a man.

Operations	Woman	Man.
Plastics	320	468
Gold	30	35
Inlays (both kinds)	37	34
Dentures	13	58
Crowns	5	6
Extraction Cases	51	64
Extractions and Locals	119	146
Administration of General Anaesthetics	122	152

INSTRUMENT SUPPLIES

The Hospital supplies each student with an equipment of operating instruments for which he pays twenty-one guineas. The Hospital buys these in the open market at the best price it can, having regard to the quality, etc. A tin box is provided for each student as well as a place to put it both in the stopping room and the store room.

ATTENDANCE

Students attend twenty-four months at the Dental Hospital working alternate months in the stopping rooms and laboratories. The clinic for attendance on patients is open from nine to twelve daily. Students must go to the general infirmary to get their medicine, surgery and pathology during any time the dental hospital is closed.

As might be expected in a hospital or dental school of many years' standing where there are interested teachers and administrators there have developed many schemes of management and methods of teaching which are unique.

SCHEDULES FOR WORKROOM PUPILS

Each Workroom Pupil will be required in each year of his pupilage to submit for competition the work set out in the following schedules. Base metals, diatoric teeth and other workroom material will be supplied, but pupils must provide the noble metals and pin teeth for themselves.

A medal will be given in each year to the pupil who best performs the work of that year.

Herewith is a schedule of the work required for each of the following years. We were fortunate in seeing all the work laid out for examination. We feel confident the examiners would find themselves in a quandary to award the prizes. We were unable to find out how the examiners were positive that each piece of work handed in was the actual piece done by the candidate in the workroom. There is always such a chance for substitution between the time of finishing and handing it in.

First Year.

The pupil must himself make and submit:—

1. Wax knife and spatula.
2. Six hand-tools of his own selection.
3. One partial and one full denture carved in xylonite or ivory.
4. One set of six models stearined and coloured.
5. Six sets of models illustrating various forms of bite-blocks and articulators.
6. One partial metal plate with chased bezels and soldered bands.
7. Six upper impression trays.

Second Year.

1. One set of plastic filling instruments in metal or ivory.
2. One set of six turned handles for hand tools or instruments.
3. Upper metal denture.
4. Cap and collar crowns.
5. Pivot crown.
6. Upper and lower dentures, teeth mounted in vulcanite on aluminium with spiral springs (swivels and bolts to be made).
7. Six lower impression trays.
8. One rubber-dam holder.

Third Year.

1. Set of six crowns, all different.
2. Two regulating appliances.
3. One appliance for prosthesis of cleft palate.
1. One appliance for facial prosthesis (e.g., artificial nose, lip or cheek).
5. One removable bridge.
6. One continuous gum block, 4 teeth.
7. One specimen metal plate rolled from ingot to No. 6 gauge.
8. Six specimen lengths of wire drawn from ingot round and half round.
9. One piece of electrical apparatus suitable for use in the operating room.

We are indebted to Dean Guy and his staff for an opportunity to look, only hurriedly, over an institution which has many distinctive features only a few of which we were able to appreciate.

The Diagnosis of Ulcerative Conditions Found in the Mouth

J. G. Elsey, D.D.S.

The arriving at a proper diagnosis of any disease is possibly of more importance than its treatment. For with a correct diagnosis, treatment is often made comparatively simple, but if an error is made at the commencement not only is the possibility of a cure or remedy very unlikely, but grave results may occur, either through wrong treatment or delay. This is as equally true in regard to mouth manifestations as it is to disease in any other part of the body.

The diagnosis of Ulcerative conditions found in the mouth involves consideration from many viewpoints. This is made more complicated owing to the marked similarity between various diseased conditions when they have reached the ulcerative stage, and frequently it is impossible to arrive at a conclusion as to what class they belong, merely by the appearance. In making a diagnosis of such conditions it is necessary to learn in so far as possible the etiology, history and duration of the disease and with this and a knowledge of the conditions likely to be found in the mouth, their symptomatology and a study of any micro-organisms present, a correct diagnosis should be arrived at.

In considering the diseased conditions which fall under this subject let us first consider the diagnosis of those conditions more or less general in the mouth, rather than those more particularly confined to the investing tissues of the teeth; not because of the latter being less important, but rather that they are more complex and confusing and can only be discussed in a more general way.

Possibly the various forms of Stomatitis present themselves more frequently than other forms of Ulceration found in the mouth. These shall be considered under the headings of Aphthous Ulcer, Thrush, Noma, Herpes Labialis, Leukoplakia Buccalis, Ulcerative Stomatitis and Syphilis.

Aphthous Ulcer is most frequently found in the form of a canker sore; in fact it is commonly called a canker when found in catarrhal stomatitis of children during or after dentition. The most common location is at the junction of two mucous surfaces, such as the gum with the lip or cheek, or the floor of the mouth with the gum or tongue. Redness followed by a nodular hardening occurs accompanied with annoying pain and gruelling. The epithelium breaks, the ulcer appearing as a small, raised, yellowish-white spot with a very definite edge. The top is easily removed and exhibits a greyish-blue floor surrounded by an hyperemic area. It is most painful. There is an absence of associated throat and skin affections. Amongst adults this condition usually follows the taking of very undigestible foodstuffs, such as Welsh rarebit, etc., and is associated with acute indigestion, dyspepsia and other gastric disturbances. The formation confines itself to the Epithelium. It is considered of toxic rather than infectious origin.

Thrush is a fungus growth with special spore-bearing organisms, the Oidium Albicans, which with branching jointed spores penetrates netweeb the Epithelial cells. It is found on the hard palate, fauces and esophagus of ill-nourished children or children whose feeding conditions are unclean (dirty bottles, etc.), or adults suffering from chronic disease. It is always due to dirty mouths or filthy feeding conditions. It appears in the form of whitish pellicles and involves the death of superficial tissue. When this is removed the layer of Epithelium beneath comes with it, leaving an area of ulceration. In feeble children it may grow to considerable size and and block the esophagus. Under the microscope this has a tree-like appearance.

Noma is also known under the name of Gangrenous Stomatitis or Cancrum Orris. This is possibly the most grave form of Stomatitis, as the condition seldom recovers. It is usually found in ill-fed, ill-nourished or ill-kept children in connection with measles, scarletina or typhoid fever. It is considered bacterial in origin, but this has not been proven. It makes its appearance as an ulcer at the junction of cheek and gums or at the corner of the mouth, or at other times it commences without a primary ulcer. A greater or less extent of the cheek becomes livid and hard, the overlying mucous membrane breaks leaving a large slough. The sore extends towards the cheek and jaw destroying further tissue. Or if it has commenced at the corner of the mouth it extends rapidly in the cheek, enlarging the mouth. The sloughs undergo putrefactive decomposition emitting a stench. The tissue destruction accompanying this disease is not confined to the soft tissues but may involve the boney structures encountered during its progress.

Herpes Labialles is the condition commonly known as cold sores. It is a vescular eruption upon the lips, tongue, mouth or alae of the nose. The vesicles are filled with a clear fluid which soon discharges. This causes a spreading of the disease in the tissues exposed to the fluid. There is no pain accompanying this condition unless through injury when it involves the deeper structures. There is severe burning and itching, especially when healing has commenced. This disease accompanies colds, fevers, exposure to heat, draughts and gastric disorders. Infection is believed to play a part in its production. It may be caused by irritation in susceptible persons. When the fluid discharges an excoriation remains which never leaves a scar.

Leukoplakia Buccalis is a condition which may result in ulceration if it is not removed. It is caused by irritation such as rough teeth, tobacco, spices and raw whiskey. It appears on the inner surface of the cheeks or lips and upon the gum and dorsum and edges of the tongue. These portions appear sharply outlined, dull whitish, slate coloured or silver whitish points, discs, bands, ribbons or patches of irregular shapes, either flattened or slightly elevated. If these are allowed to continue to ulceration danger lies in the tendency to epithelioma.

Ulcerative Stomatitis (Trench Mouth or Ulcerative Acute Gingivitis) commences with a sudden onset, with a sensitive and serpiginous ulcer consisting of necrotic tissue elements and a creamy, pasty exudate. There is a characteristic fetor of the breath, and hemorrhages, either spontaneous or induced by touch. Accompanying this there is an inneurosis, exhibiting malaise, mental depression, insomnia, restlessness and loss of appetite, high temperature, metallic taste and a profuse flow of saliva. This condition usually starts around the margins of the gingiva of the lower jaw and extends backwards and upwards sometimes involving the tonsils and palate, or even extending to the gingiva of the upper jaw, the tongue and cheeks. The affected parts are swollen and covered with a greyish slough composed chiefly of bacteria and necrotic tissue. A miscroscopic examination of a smear from the ulceration shows the presence of the Spirochaete of Vincents Angina together with the fusiform bacillus. There is an acquired debility of the oral tissues and this permits the growth of the micro-organisms, and these, together with their poisons, gain access to the deeper parts when a true ulcer results. There is a constant swallowing of offensive material which upsets the stomach, resulting in diarrhoea and dysentry. The submaxillary gland may become tender and tumid. When the micro-organisms from this condition gain access to the diseased gingival crevice Ulcerative Crevicular Gingivitis develops. The disease progresses very rapidly and continues growth of bacteria and production of poisons which soon develop deep pockets resulting in denuding the cementum and formation of Cemental Ulcerative Gingivitis. This condition may continue forming a condition of Alveolar Ulcerative Gingivitis—ulceration being present in all these conditions.

Evidences of Syphilis may be discovered in the mouth in any of its three stages. In each its symptomatology differs considerably. The primary lesion of syphilis is the result of direct infection from a syphilitic object as compared to its other forms being of a secondary nature. Its cause may be very innocent, such as from kissing, drinking from a glass that had been used by a person infected, smoking cigars or cigarettes that had been rolled by a syphilitic or by contact with any instruments which had been used upon a syphilitic. In all these cases it is necessary that the infection come in contact with an abraded surface. The appearance of the sore is never before ten days or after ninety days after exposure to infection, and usually averages about twenty-one days. At this stage it appears in the form of a chancre. It is first a single, hard papilla or pimple, usually about the lips, which increases in size until about as large as a dime and during this time usually becomes ulcerative. It is dark in color and shows very little elevation. It is embedded in an indurated subcutaneous infiltrated mass, surrounded by a cartilaginous ring which between thumb and finger can be distinguished as a chancre by its hardness and the lack of pain, burning, itching and fever. After about ten days it softens and becomes covered with a grey film, then the central portion ulcerates and presents a dirty greyish appeaance and dischages a serum which is highly infectious. Swelling and hardening of the sub-maxillary glands may be noticed at this time. If the sore has appeared on the tongue the sub-hyoid glands are swollen but there is no pain accompanying the swelling. Usually the sore disappears after three or four weeks leaving no signs. The characteristics of its appearance are its regular outline, the elevation of the sore, lack of pain and cartilaginous appearance when palpated. If it is possible to learn the time of inoculation it aids considerably in diagnosis.

In its secondary stage Syphilis appears in a form known as syphilides and the infection is a general infection from within. In this form it always presents as a mucous plaque or patch which first appears macular; then papular; then pustular. It is attended by fever, eruptive inflammations of the skin, and is accompanied by sore throat, due to inflammation of the mucous membrane of the pharynx and parts about, together with a hoarseness of the voice, due to the extension of the affection to the mucous membrane of the larynx. The appearance of the sore is that of a reddish or copper coloured spot, not raised, embedded in a stoma of thickened, slightly schlerotic base surrounded by a dark red aureola. The centre softens and is covered by a greyish film, resembling non-specific Stomatitis, and discharges a highly contagious fluid. It is especially evidenced beneath the tongue and upon the fold of the membrane in that locality, but it may be on the tonsil, fauces, pharynx, soft palate, lips or bucco-labial surface forming a most virulently contagious lesion· These are usually followed by papules which are rarely painful and have a ragged irregular outline, showing considerable tendency to spread, due to maceration in the oral fluids. There is infiltration of the surrounding tissues breaking it down in ragged ulcers and a raising of the edges; and the tissue may be so eroded that considerable pits are developed, which become extremely painful. In less pronounced cases it may appear as a round or ovoid yellowish sore without aureola, but with a slight excavation and discharge and considerable pits may develops, which may extend to deep fissures. In healed cases the cicatrices present a whitish pellicle and contracted scar indicative of old healed ulcers. The characteristics of Secondary Syphilis are the copper coloured sores, possibly accompanied by skin eruptions and alopecia. In some cases where no local lesion has been in evidence frequent nocturnal, indefinitely located dental pains extending to the Palatal region have been experienced by those suffering from the disease, when no lesion was evident.

Tertiary Syphilis or Gumma appear in from two to five years after inoculation and are seldom evidenced by the dentist until they make their appearance on the surface in the form of an ulcer. These as found in the mouth arise from the deeper structures of Cennective tissue and the periosteum. They may make their appearance on the hard or soft palate, jaw, tongue or lips. Before the ulcer has been formed, hard nocullar connations may be noted. Chronic periostitis of the hard tissues may occur leading to formation of localized thickening or these thickenings may appear in the soft palate or upon the tongue. The mucous membrane over-lying these swellings breaks and an ulcer is established. This large loss of tissue either bony or soft is known as Gumma. A defined ragged ulcer of long standing occupying the hard or soft palate should always be viewed with suspicion and other evidences should be looked for. Leukoplakia frequently accompanies Tertiary Syphilis.

Now let us turn to those forms of ulcerations other than Ulcerative Stomatitis which are more particularly concerned with tissues immediately surrounding the teeth and which together with Ulcerative Stomatitis fall under the study of Periclasia. Really all the forms of this disease must be kept in mind during diagnosis of Ulcerative Conditions—for any of them if let run their course will become ulcerative and it is difficult to draw a line as to which are and which are not to be considered in this class. The study of the diseased conditions of the tissues immediately about the teeth is so exhaustive that but a few general statements regarding their appearance can be made here. In all Ulcerative forms of Gingivitis there is inflamed condition of the gums, the teeth are most likely loose and pus pockets of greater or less depth are evident, from which an exudate escapes, either from pressure from within or by palpation. In many cases there is a marked recession of gums and an absorption of the alveolar process may be quite evident. The condition may be discovered as Marginal Acute Gingivitis, Cemental Acute Gingivitis or Alveolar Acute Gingivitis, depending upon the extent of the condition. When a cause of this disease is evident diagnosis is more easily made.

In the foregoing paragraphs I have endeavored to set forth the diagnosis of Ulcerative Conditions found in the mouth in a manner in which they may be observed by the general practitioner. The information herein was obtained from a study of writings on the subject contained in Osler's Medicine, Burchard's and Inglis' Dental Pathology, Black's Special Dental Pathology, Dental Cosmos, Dental Items of Interest and notes from papers given by Dr. Harold Keith Box.

Gingivitis

W. R. Bennett, D.D.S.

1. *Definitions*—

The word gingiva, plural gingivae, is derived from the latin word gigno, which means to be born, to spring, to arise, and is applied to that portion of the gum tissue through which the tooth erupts, and later to that soft tissue immediately encircling the tooth.

Gingivitis is inflammation of the gingivae or may be defined as the reaction phenomena of the gingival tissues to any injury done to them. Anything that is capable of injury to gingival tissues may produce in them a phenomenon of inflammation. The reaction of the tissues to any injurious agent and to the injury produced by it differs according to the nature of that agent and to the severity of the injury. The function of the reaction is to eliminate the noxious agent, to counteract its action, and to repair the injury produced.

2. *Description*—

For the purpose of description we may divide the gingivae as follows,—

(a) *Marginal gingivae*—those portions of the gingival tissues that are not attached directly to the tooth surface. They are soft tissue processes growing out from the cemental gingivae and covering a portion of the enamel surfaces of the crowns of the teeth and join the septal gingivae at the angles of the teeth. This part of the tissue has no attachment to the teeth after passing occlusally of the gingival line, but is closely fitted about them. They form by their contact with the enamel the gingival crevices.

(b) *Cemental gingivae*—those portions of the gingival tissues which are attached to the cementum, crownward from the crest of the alveolar process to the base of the gingival crevice.

(c) *Alveolar gingivae*—those portions of the gingival tissues overlying the alveolar process.

3. *Histology*—Histologically the gingiva consists of epithelium and stroma.

Epithelium—The epithelium is a strong pavement of the stratified Squamous type. In some parts the stroma beneath is quite closely interdegitated into the epithelium, giving it a very firm hold, so that it is not easily scraped away. The epithelium has an especially strong growth and the surface cells are continually being shed away to give place to new ones. These cast-off cells will be found liberally distributed in every specimen of mixed saliva taken from the mouth. The long finger-like processes called papillae sometimes extend to very near the surface of the epithelium.

Stroma—The stroma is the name given to the tissues underlying the epithelium. It is connective tissue in origin, very dense and has an abundant nerve and blood supply. The denseness of the stroma is due to the numerous fibres it contains. These fibres are the means of attachment of the tooth in its socket and also the means of attachment of the marginal gingivae to the arvical margins of the teeth. These two groups of fibres, the former extending from the cementum to the alveolar process and consisting of transverse, oblique and crisscross fibres, is called the principal group; and the latter, which extend from the cementum at cervical margin of the tooth to the epithelium, the free or crest group of fibres. In the stroma are found the blood vessels and nerves, as well as the ordinary connective tissue cells, wandering cells, fibroblasts, etc.

Blood Supply—The blood supply in the gingiva, as everywhere in the mouth, is rich, and especially so in the capillary circulation. The blood vessels will be found everywhere in the tissues winding in every direction among the interlacing white fibres. Accompanying the blood vessels, there are a smaller number of softer connective tissue fibres and cells filling in the interstices of the coarser fibrous mat. Into each papilla there enters a small capillary which loops at the open and returns as a small vein. Owing to the closeness of some of the papillae to the surface the blood supply is also very close and the least break will reach a direct blood supply making it easy for infection to enter the stroma.

Nerve Supply—The nerve supply is good but the tissue is not very sensitive, though its sense of touch is very good. Its lack of sensitiveness to pain that would ordinarily be caused by the forcible movement of tough materials during mastication is a curious but necessary phenomenon of nature.

4. *Pathology,*—Gingivitis being an inflammatory process, the causative factor being injury, the pathology is a reaction to injury complicated by infection. There must be access through the epithelium to the underlying tissues before the bacteria can gain entrance. This is accomplished by some injury breaking the epithelium or the epithelium being de-

fective and having a break in the first place. On account of the papillae coming so near the surface of the epithelium this is easily accomplished. As soon as the bacteria enter into the stroma an injury takes place due to the tonic action of the bacteria. Thus we have a local reaction to injury complicated by infection. This reaction of the body is manifested locally by disturbances of innervation and circulation. General disturbances are also felt in accordance with the virulency of the infection. These general disturbances are evidenced by an increase in blood pressure and a slowing of the pulse.

The local circulatory disturbances are first a showing of redness due to the dilitation of the blood vessels and an increased flow of blood to the part. This is called an active hyperemia. The dilitation of the blood vessels is brought about partly directly and partly reflexly, directly by the actions of the toxins stimulating the vaso-motor nerve centres, generally the larger ones, along the course of the blood vessels, and reflexly, by action upon the vaso-dilator nerves.

Next there is a change in the permeability of the vessel wall leading to an increased transudation and a swelling of the surrounding tissues. This is a curative process, an attempt of nature to wall off the rest of the body from the injured part. When the vaso-motor nerves dilate the blood vessels there is an increase in blood supply to the part. Under normal conditions there is an interchange of fluids from the vessels to the surrounding tissues and from the surrounding tissues back into the blood stream. There are always more fluids leaving the vessel than returning on account of pressure, the excess being carrried away by the lymphatics. On account of an increase in blood supply there is bound to be an increase permeability of the vessel wall with an increase exudate and consequent swelling. On account now of the increased loss of fluid the blood stream becomes slower, consequently there will be a marginal arrangement of the leucocytes. These being the lighter cells they go to the slow moving periphery of vessel stream. Rolling over and over some are soon stuck at the junction of the endothelial cells and work their way through to the surrounding tissues. Great numbers of the leucocytes find their way through like this and there is a consequent small cell infiltration to the injured part along with a greater amount than normal of blood plasma.

Surrounding the injured part is now a mixture of blood plasma leucocytes, bacteria fixed connective tissue cells and connective tissue with the leucocytes and bacteria fighting for supremacy. If treatment is applied here and leucocytes are able to successfully combat the bacteria the reaction may stop here. If not, however, it will continue on account of the pressure. Stasis of the blood stream will take place with a resulting death of tissue. If this goes on for one to two hours, the dead cells become soaked in the coagulable plasma. A fibrin ferment is set free from the breaking down leucocytes and on coming in contact with the blood serum form fibrin. The bacteria set free a proteolitic ferment which liquifies all this dead tissue in which stasis has occurred forming the so-called pus.

Thus following bacterial invasion there is an initial inflammatory reaction leading to ulceration and formation of pus in the cemental gingeva known as a pus pocket.

5. *Etiology,—*

The *direct etiological factor* in gingivitis is bacteria but there are also numerous factors which reduce the resistance of the gingivae and allow the bacteria to produce the damage.

For the purpose of explaining these factors we will classify them into:—

(a) *Primary predisposing factors.*
(b) *Secondary predisposing factors.*
(c) *Sustaining factors.*

A. The primary disposing are divided into four main factors:

(a) *Surface abnormality.*
(b) *Restorative impingement.*
(c) *Extra oral trauma.*
(d) *Traumatic occlusion.*

(a) *Surface abnormality* is due first to unsanitary concretions hard and soft, and secondly, rough enamel surfaces. The hard and soft deposits introduce a mechanical and also a chemical irritation either through decomposition products or as carriers of bacteria. Salivary calculus consists of a precipitate of calcium carbonate with a small amount of phosphate; mixed with this precipitate is disorganized organic matter, mucin and bacteria. Serumnal Calculus is both a cause and a result of Gingivitis. It is usually a precipitate from a hemorrhagic exudate, such exudation occurring only as a result of capillary congestion due to a chronic irritation. Having once formed it adds the burden of its presence to the previous irritation. When observed therefore it is always interpreted as a signal pointing to the coincidental occurrence of other factors.

Soft concretions are food debris, materia albo (the white material found lying in the form of a scum on tooth and gingival tissues and loaded with bacteria) and abnormal saliva. Ropey saliva fails to keep mouth properly cleansed.

Rough enamel surfaces are either present or acquired. Such diseases as measles, scarlet fever, infantile paralysis, when they occur during the formation of enamel which will on eruption lie in contact with the gingivae very often interfere to such an extent as to cause that portion of the enamel to be pitted. This may be macroscopic or microscopic. Other roughnesses, as caused by etched enamel, curies, erosion, etc., may be acquired.

(b) *Restorative impingement*—Or impingement of such restorations as fillings, bands and clasps upon the marginal gingivae. These seldom produce an absorption of soft tissues if the immunity to bacterial attack is high. When recession takes place following the placing of a crown it is usually due to traumatic occlusion rather than irritation caused by the band.

(c) *Extra-oral trauma* may be caused by food impaction, incorrect mouth toilet or operative trauma such as clamps, ligatures, etc.

Food impaction due to lack of interproximal contact or to an abnormal buccal or lingual position of the tooth whereby food may pass through between it and the adjoining tooth whose buccal-lingual position is normal is possible. Also food impaction due to labial lingual overbite. This is usually seen in lingual gingivae of upper incisors. Whilst food impaction does cause pain it does not cause deep peridontal trouble.

Too rapid a separation may result in a permanent space being left between the teeth and an absorption of the approximal bone and gingivae. This form of operative trauma is particularly injurious where the separation is between the two upper central incisors. Here the interlacing sutures of the pre-maxillary bones are frequently broken and at times may never again become closed.

(d) *Traumatic occlusion* frequently produces disturbances in the circulation of the gingivae owing to their close relationship to the pericementum. Caused by a refered or reflex hyperemia.

B. *Secondary Predisposing factors.* These may be divided into four main classes—

(a) *Abnormal systemic conditions.*
(b) *Chemical irritation.*
(c) *Local characteristics.*
(d) *Injurious habits.*

(a) *Abnormal systemic conditions*—This takes into consideration cell vitality blood supply as regards quality and quantity; faulty elimination; lymphatic insufficiency and excretory insufficiency as well as other nutritions and influences deficient.

Abnormal tissue tones may be induced by systemic diseases. Gingivitis exhibits a more rapid progress and a slower convalescence in patients having an over-abundant blood supply than in those having a deficiency.

(b) *Chemical irritation* is of two kinds; firstly from the decomposition of foods such as ameno-acids and ptomaines; and secondly by inorganic poisons such as mercury and phosphorus.

(c) *Local characteristics*—or inadequate epithelial protection. This may be caused

(1) by the epithelial layer being extremely thin or broken
(2) by faulty junction of the epithelium with the tooth
(3) by frail osseus support.

Frail osseus support has much to do with the progress of the disease. When the buccal and lingual plates are unusually thin—there may be an abnormal buccal linguae movement of the teeth under stress of mastication. This may lead to the absorption of the alveolar crest or may even cause sufficient irritation to prepare the way for bacterial invasion.

(d) *Habits*—These may influence tissue tones. Habits such as mouth breathing and heavy biting, etc.

C. *Sustaining factors*—These are factors which will keep up the gingivita and are

(a) *Serumnal deposits*—These prevent the resolution of ulceration and keep up the irritation.

(b) *Necrotic pericementum.*

(c) *Septic cemental surface*—When principal fibres are separated from the cementum and alveolar process they leave pitted depressions which are always septic.

6. *Treatment*—

Phase A. Standardized examination—

1. Make a complete radiographic examination.

2. Make study casts for studying occlusion and also for records.

3. Make clinical examination—explore for pus pockets and find causes of trouble.

Phase B. Scaling and polishing of enamel surfaces—

ETIOLOGY CHART OF GINGIVITIS

Tissues Involved and Lesions Present	Sequence of Pathology	Direct Etiological Factor	Factors Producing Lowered Resistance in Gingivae	How Produced
GINGIVAE GINGIVITIS Ulceration of cemental gingivae (pus pocket)	I Initial inflammatory reaction following bacterial invasion	BACTERIA	**A. Primary Predisposing**	
			1. Surface abnormality	Unsanitary concretions, Hard—Salivary, Serumnal Soft—food debris, materia alba, abnormal saliva. Rough enamel surface—Developmental and acquired.
			2. Restorative impingement	Marginal gingivae—Fillings, bands, clasps.
			3. Extra-oral trauma	Food Impaction—Defective proximal contacts, abnormal labio-lingual relation. Incorrect mouth toilet—Incorrect brush or brushing. Operative trauma—Clamps, ligatures.
			4. Traumatic occlusion	Traumatic occlusion frequently produces disturbances in the circulation of the gingivae owing to their close relationship to the pericementum—a refered, or, reflex hyperemia.
	II Ulceration established.		**B. Secondary Predisposing**	
			1. Abnormal systemic conditions	Cell Vitality—Blood supply—quality—quantity; faulty elimination—lymphatic insufficiency (local) ; excretory insufficiency (general). Other nutritional influences — insufficient — tooth brush massage.
			2. Chemical irritation	Decomposition—Diet—products of food, amino-acids, ptomaines. Inorganic poisons — Mercury — phosphorus.
			3. Local characteristics (inadequate epithelial protection)	Epithelial-layer—extremely thin or broken. Faulty junction of epithelium with the tooth. Frail osseus support.
			4. Injurious habits	Mouth breathing
	III Formation of pocket in cemental Gingivae		**C. Sustaining**	
			1. Serumal deposits	Prevents resolution of ulceration —mechanically and bacterially
			2. Necrotic pericementum	
			3. Septic Cemental surface	Pitted surface and retained ends of principal fibres are always septic

1. Remove deposits, plaques, etc., to the depth of 1 m.m. below gum. Polish after scaling with pummice and follow with triplex silver.

2. Correct traumatic occlusion by grinding.

3. Instruction to patient in correct method of using tooth brush.

4. Curettment of pus pockets.

Phase C.

1. Give further instruction to patient in daily care of the mouth, proper methods of massage and mouth sanitation.

2. Removal of debris and polishing of teeth until patient has mastered oral hygiene of the mouth.

3. Oral prophylaxis at definite intervals.

SELECTIONS

How Can We Best Safeguard Our Teeth?

There is probably no other problem in the field of preventive medicine deserving of more careful study and serious consideration than that of the care of the teeth. This problem, unfortunately, has afforded many an enthusiast an excellent opportunity to permit his enthusiasm to warp his judgment. Not long since, one of these, occupying a prominent position in the United States, stated that in a certain city where the principles of oral hygiene have been carefully carried out, diphtheria, measles and scarlet fever have been reduced more than one-half as a direct result. We know, as a matter of fact, that neither he nor anyone else could possibly justify any such claim if the records were followed up year by year for five or ten years.

The same writer makes most extravagant claims about emptying asylums by cleaning up the mouths of the inmates, stating that by such measures even as high as 70 per cent. in one asylum have been discharged and that in addition to this there has been a wonderful reduction in the number of cases of mentally sub-normal children.

Such statements are most unfortunate, inasmuch as there is ample, indisputable evidence of the important role played by dental caries and by the general disregard of the care of the teeth in the health of the individual.

If it were for no other reason, the preservation of the teeth for the purpose of mastication would more than justify all the efforts that we could put forth. In addition to this, there is an extremely important role that teeth play as a source of focal infection from pyorrhoea and from abscess formation at the roots of the pulpless teeth. Pulpless teeth that have been veneered with gold crowns and bridges have called down the anathemas of the medical profession and of modern students of dentistry. Teeth, tonsils and the intestinal canal form a triple alliance of focal infection.

In Toronto, as in all large cities, where surveys have been made of the schools, is has been found that from 85 to 95 per cent. of the children entering school have one or more defective teeth, or from one to ten cavities in every one of the children's mouths. However, after preventive measures have been rigidly carried out after entering school and an educational campaign carried on among the children previous to entering school, we are finding that the percentage of children with defective teeth is becoming lower and lower year by year.

Diet versus Tooth Brush

When Carlyle said that only one person out of five thousand thinks, he might have added that many of those who do think, do so only on the instalment plan, or that their intellects seem to become short-circuited after a brief activity along certain lines.

For generations, the medical profession has known that defective or arrested bone development in the case of rickets was due to some deficiency in the diet, a lack of calcium, carbon or phosphorus, and that the continued use of cod liver oil, milk, cream, eggs, was promptly followed by rapid improvement. However, it is only in recent years that we have learned that cod liver oil and cream are two of the most valuable sources of anti-rachitic vitamins. Children suffering from rickets invariably have defective teeth. Why did we not realize sooner defective teeth resulted from defective diet?

We find in all museums, skulls of people of advanced years, the jaws of which are studded with well developed teeth in good condition. When those who have been making observations along these lines examined these skulls, did it never occur to them that the tooth brush was unknown to these early peoples as were also the tooth powders and tooth washes? They had, however, the most valuable of all tooth washes, a free flow of saliva. They had sound teeth because they embraced in their diet, the essentials for the development both of bone and that hardest, most resistant of body structures, the enamel of the teeth.

Professor McCollum of Hopkins draws attention to the collection of skulls of Indians from the Aleutian Islands, Peru, Honduras and the South Sea Islands in the National Museum at Washington, who lived between two and three hundred years ago. Among several hundreds of these, only one tooth showed dental caries. He states, in tracing the history of these people and their methods of living, that their diet was excellent from the standpoint of chemical completeness. He further emphasizes the fact that the conditions found in these people, hold good in all pastoral people where dairying is the leading industry, and ample amounts of milk and dairy products are available.

It is not necessary, however, for us to go back to the crude, coarse food of our forefathers, in order to develop proper jaws and teeth. It is essential, that we see to it, that our food contains an ample supply of material from which jaws and teeth are made. Furthermore, we are not aware that Nature discriminates in its distribution of gifts, but sees to it that the back is fitted for the burden, and consequently on account of the extra strain brought to bear upon the teeth at all times, and their exposure to deteriorating influences, such as extremes of heat and cold and bacterial infection, they are provided with a covering of enamel. The consistency or quality of this enamel is in direct ratio to the material supplied in the diet of the individual.

Much has been said and written recently on the influence of the sun's rays and the ultra-violet rays in the prevention and cure of rickets, used in conjunction with a plentiful supply of milk, cream and butter. It has also been pointed out how much more rapidly these cases of rickets improve in summer. May this not be due in a great measure, to the fact that in summer the dairy cows live largely on grass and green foods of all kinds and consequently their milk is much richer in all of the vitamins, particularly the anti-rachitic vitamin, than it is in the winter when they have not the advantage of green food.

However, it must be apparent that the conditions that influence rickets or that are responsible for rickets, must also play an important role in the definite development of the teeth and consequently in dental decay.

In the light of the knowledge we now possess, as regards the significance of a properly balanced diet, and the role played by the accessory food factors or vitamins, it must be apparent that in our so-called preventive treatment or oral hygiene, and also in our efforts to repair at the earliest moment the damage done, we are simply trying to atone for our failure in prevention. So far as the present generation is concerned, we must continue rigidly carrying out these principles of oral hygiene, but we must bear in mind in the interests of the infant and the very young child and the children yet unborn, and for future generations, that proper nutrition, containing all the accessory food factors, is the foundation upon which preventive dentistry must be constructed. This problem of proper nutrition must begin with the expectant mother and continue through adolescence to maturity.

There have been all sorts of statements made, speculative many of them, regarding the cause of the decay of the teeth.

Miller's theory of lactic acid produced by bacterial action on the carbohydrate elements of the good is generally accepted. The lactic acid dissolves the tooth structure and allows the entry of the bacteria which produce decay. It is consequently not an infrequent statement, by those that pin their faith to the tooth brush, that a clean tooth never decays, and that if people continue to neglect these principles of oral hygiene and the early attention to the teeth, in a few generations the race will be toothless. That is probably true if we depend on the present principles of oral hygiene alone. Much can be done by the carrying out of the hygienic precautions in the care of the teeth and the prompt repair of any slight decay. However, we may unhesitatingly state that if we begin with the proper nutrition of the mother, that is, if we see that the expectant mother and the nursing mother has in her food the material out of which perfect teeth and jaws are made, we may expect in a few generations that we will have teeth that will compare favorably with our forefathers and the primitive races.

In addition to the well-balanced diet, when the teeth have developed and are ready for use, we have to bear in mind that exercise is the groundwork of development and consequently the food of the child must be of a character that will afford an opportunity for ample exercise of both teeth and jaws.

Defective teeth, adenoids and enlarged tonsils, are all much more prevalent among the undernourished children. Therefore, when we give the attention to the whole problem of nutrition that its importance merits, we will have better teeth, fewer adenoids and enlarged tonsils and a much fitter race.

What Diet Do We Recommend?

For the expectant mother we only require to bear in mind that the sources of all the vitamins or accessory food factors are in the dairy products and green leaf vegetables, grasses, etc. Of the leafy vegetables, lettuce, spinach and cabbage, for the expectant mother, are the most valuable. There is a liberal amount of two of these vitamins contained in fresh vegetables, but they cannot take the place of the green leafy vegetables, some of which should constitute a part of the daily diet of the expectant mother. And in addition to these, with meat, eggs, etc., she should drink at least a quart of milk a day to ensure an ample supply of the third vitamin. It is important in this connection to bear in mind that milk contains these vitamins in proportion to the amount of green food that the dairy cow is getting.

SERVICE IN TORONTO SCHOOLS

This Department believing strongly in the importance and value of regular dental inspection and care for school children, conducts a dental service in the public and separate schools. This service has a staff of thirty-two dentists on half time duty under a Director of Dental Services. Every child is examined once a year and a report of the mouth conditions found is sent to the parent. This is of great value as parents are thus kept informed of the changes which may occur so rapidly in the developing child and sometimes warned of serious dental disease before irreparable damage is done. Realizing that prevention is of most value the dentist, in his talks to the children on the anatomy and hygiene of the mouth and teeth, teaches the relation of diet to the teeth, approved methods of brushing, and the importance of their care. This instruction is followed up in the health lessons given by teacher and nurse, so that the school child of today has a very creditable knowledge of these most important matters. This is shown by their written essays, clever drawings and posters.

In addition to the dental examination of all school children, the service conducts eighteen operative clinics and four extraction centres in the public schools. The work accomplished in 1922 is briefly summarized in the following figures.

SUMMARY OF WORK FOR 1922
IN PUBLIC AND SEPARATE SCHOOLS

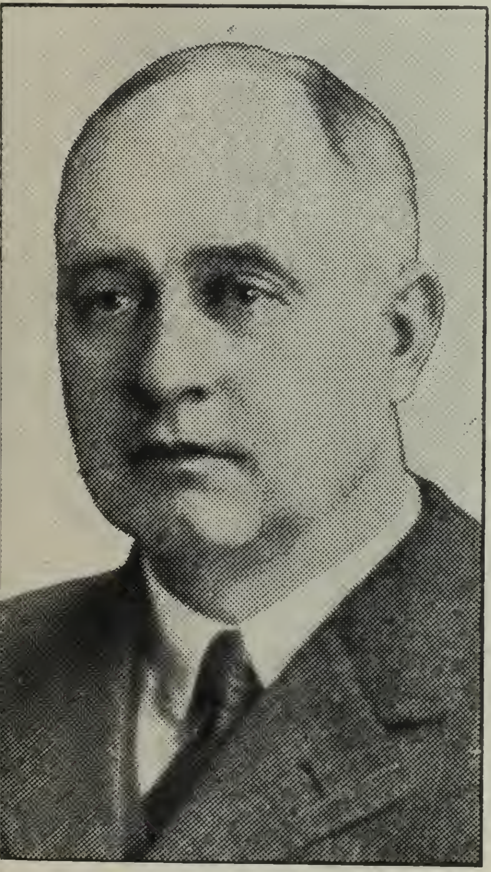
Number of children examined	73,581
Percentage found with dental defects	42,378 or 58%
Number of children treated	38,399
Number of children completed	21,851
Deciduous teeth extracted	33,831
Permanent teeth extracted	3,191
Local anaesthetics	10,256
General anaesthetics	1,567
Treatments	23,482
Prophylaxis treatments	5,685
Amalgam fillings	24,223
Oxyphosphate of zinc fillings	2,710
Oxyphosphate of copper fillings	9,871
Temporary and other fillings	5,318
Total number of fillings	42,122

No school dental service could hope to overtake its problem without some supervision of the child before entering school, from at least three years of age. That prenatal conditions also are most important is evidenced from the fact that the first teeth commence to develop about six months after birth and the permanent teeth about two or three years after birth. At seven years of age this development while not complete, has proceeded so far that improvement in the tooth structure is much more difficult to effect. This service, therefore, co-operates in the Prenatal and Child Welfare Work of the Department, through talks to mothers on the importance of diet in its relation to the teeth through this early period.

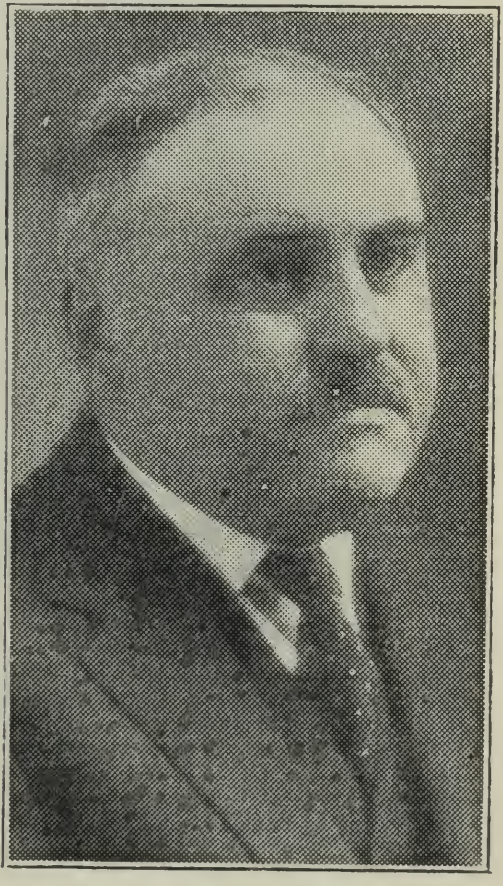
One half day per week is also reserved in each school clinic for pre-school children. The advice given to mothers as to care of children's mouths is followed by early treatment when necessary. It is safe to say that with proper dietetic habits and monthly visits to the dentist for prophylaxis treatment, that development of dental caries could be prevented.

—*Health Bulletin*

DENTAL MEMBERS OF THE ONTARIO HOUSE



Dr. Berry, M.P.P.



Dr. H. A. Clark, M.P.P.

SOCIETIES

1924 Meeting of the Canadian Dental Association in British Columbia

The date for the big meeting has been set. Dr. S. W. Bradley, President of the Association, after consulting with the men in British Columbia and ascertaining the opinions of the other provincial associations as to the most suitable time of the year to hold the meeting, has fixed on the week of August 4th, 1924.

Anyone who knows British Columbia will agree that a more delightful time of the year could not have been chosen. It will also give those who live in the East a chance to see the Great West at the time of the golden harvest while en route and returning.

Dr. W. J. Bruce of Vancouver, Chairman of the Executive Council, was in the East during July and August. He took advantage of the opportunity to get in touch with any of the local men who were not on holidays and discuss with them his plans for the meeting. Those who met him were much impressed with his enthusiastic hope for a big successful convention. On his return to Vancouver, the various committees will be formed and organization work start right away. All he asks for is a good attendance from the East, and he says to assure the ladies that they will be looked after from the time they step off the train. The fact that friend husband is busy attending a big Dental Convention will be no hindrance to their having the most enjoyable and interesting week ever. A strong publicity committee will be formed with headquarters in Vancouver, and representatives in every province. They will publish a bulletin from time to time giving the fullest information as to the plans for the meeting. The provincial representatives will have charge of the arrangements for the trip out and returning, so as to get the most out of it from a scenic standpoint, entertainment features, etc.

Drs. C. A. Kennedy and W. B. Amy have already been appointed for Ontario and have been for some months studying routes, rates, etc. Their plan is to secure the best possible rate and by travelling together to reserve whole coaches, so that there will be ample accommodation and no crowding. In this way also, stop-overs at interesting points can easily be arranged. About 50 people have already notified Dr. Kennedy of their intention of going. Any who are going from

Ontario should send their names to Dr. Kennedy, 86 Bloor St. W., Toronto, as it will help him in securing rates and accommodation. The trip across Canada by boat and train is going to be a big feature. Interesting announcements will be made in the near future.

The programme is beginning to take form. It will be largely made up of progressive clinics, as this type of meeting seems to meet with the most favor, and offers a real post-graduate course. Those who imagine that all the dental wisdom in the country is to be found East of the Rocky Mountains are in for a rude shock. The standard of dentistry on the Pacific Coast is very high and some of the biggest men in the various specialties of dentistry are to be found there. For the different schools of thought from East and West to mingle and exchange their views cannot but result in great good to the profession as a whole. From this standpoint and also as an enjoyable vacation seeing this wonderful Canada of ours, it will be a meeting that none of us can afford to miss. So start right now and plan to attend

CANADA'S BEST DENTAL CONVENTION.

Edmund A. Grant,
Secretary,
Canadian Dental Association.

Manitoba Dental Examinations

The results of the annual examination for dental license conducted in Manitoba by the University of Manitoba have been announced by the registrar. Six candidates were successful in completing the entire examination and have been reported to the secretary of the Manitoba Dental association as eligible for admission to the practice of dentistry in Manitoba.

Their names and grades are as follows: Paul Cleave, Neepawa (Class 2); Daniel R. Jacob, D.D.S., Greenbush, Minn. (Class 2); Paul E. La Fleche, D.D.S., St. Charles (Class 2); Robert H. Murdoch, Pilot Mound (Class 1B); Marshall E. Ritchie, Brandon (Class 1B); Herbert W. Tweed, Winnipeg (Class 1B).

Miss Crete Munson passed with supplementals in practical operative and practical prosthetic dentistry. Aidan W. Holden completed the written part of the examination. William J. Arnold passed Part 1. Hyman Greenberg passed a supplemental in theoretical prosthetic dentistry.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

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The Study of Dentistry

Most young men and women who intend to take up the study of a profession this year have already chosen their calling and the school which they expect to attend. To those who have chosen dentistry it might not be amiss to review the situation at present and what it will be at the time of their graduation. On the whole there are not nearly enough dentists to supply the present demand, not to mention the demands of the future. The difficulty as in many other commodities is one of distribution. Many countries are totally lacking in qualified dentists while others seem to have an excess. If there were no barriers to migration from one country to another, more people would be served and a better living provided for those in the profession. Outside of the legal barriers there are the barriers of language and social positions and usages which ought to be sufficient without any other. There are not enough dentists in any country to serve all, or nearly all its people. In some countries there are enough dentists to serve those who can afford to pay fees sufficient to support a dentist.

At the present time there is a shortage of dentists even among some of the English speaking nations, while Canada has graduated more dentists in the past three years than in double the period at any other time. There were two reasons for this. First, the services of dentistry were so conspicuous in the war that the attention of young men was directed to it. Second, some dental institutions did a good deal of propaganda work or advertising for the purpose of attracting students. These two factors interfered with the law of supply and demand. At present there is a tendency among these same dental institutions to decry the opportunities for young men in dental practice. By the time five years have passed the present apparent excessive number of graduates in Canada will be located at home and many abroad and the natural loss by death and retirement and the increase of population and dental demand will give ample opportunity for all those graduating for the period 1925 to 1930. The law of supply and demand would keep an even balance if it were allowed full action.

Another lack of distribution may be found between rural and urban districts. Every young man who spends five years in a city getting his education is so attracted by the bright lights and the friends made (especially the relations of the young lady) that he does not wish to live in a small town or city. In this way large cities are over-crowded with professional men and rural communities are left without adequate service.

Dentistry in Canada offers more to the young man who graduates five years from now than at any time in the past, and offers infinitely more in foreign countries at the present time than in Canada.

CORRESPONDENCE

Needless Destruction of Tooth Tissue

Toronto, June 14, 1923.

To The Editor,
Dominion Dental Journal,
Toronto, Ont.

A Plea for Greater Conservation of Tooth Structure in Inlay Cavity Preparation.

Sufficient time has elapsed since the close of the convention to have given opportunity for practical application at the chair of the many suggestions and various methods given the profession at the clinics. The acid test has been applied, many additions have been made to the regular procedure and many have proved impractical for the general practitioner.

It is safe to say that never before have inlay clinics been so thorough and practical and the efforts made by patient research to explain and eliminate those difficulties inherent in this form of filling reflect the greatest credit on those taking part in the clinics.

Destructive criticism is comparatively easy, but it is a difficult matter to produce better methods, and the only excuse that warrants the critic is the hope that some improvement may result from the discussion of the subject.

The most important objectives in tooth preparation either for filling or bridge abutments are: Prevention of recurrence and permanent attachment to the tooth. If this is granted, the reckless destruction of tooth tissue as shown in the clinics does not appear to be warranted by these two considerations either from the standpoint of necessity or the practicability of the very difficult technique.

It is the endeavor of most operators to find a simplified technique which will attain reasonably uniform results and no doubt in many cases this is carried to excess and develops imperfections, but is there not a great danger in following such an elaborate system that difficulties are multiplied and other factors added which decrease the probability of uniform success?

There are many angles from which this subject may be approached, but if it is conceded that nature is the best architect of tooth structure it must follow that artificial substitutes should be used as little as possible provided the desired results are obtained.

Practically all the cavity preparations shown in these clinics exhibit unnecessary destruction of tooth tissue, but the most glaring examples appear in the preparation for bridge abutments as shown in the accompanying illustrations.

It should be the aim of the operator to sacrifice as little as possible of the natural tooth, but this seems to have been ignored in the examples given at the convention and also in the published articles on the subject.

The technique is difficult and in the majority of cases impossible without resort to anaesthesia, which in itself is sufficient to condemn the practice. Particularly, the three-quarter inlay is indefensible excepting in the rarest of cases.

There are many principles in engineering which might well be adapted to this procedure, such as the foundations and attachments for tie rods, etc., used in bridge and dock construction, also in securing the necessary rigidity for telegraph poles and similar structures where a great margin of safety is desired under varying weather conditions.

These are homely examples, but involve principles which in inlay preparation seem to have been overlooked.

This side of the subject might be pursued to greater length, but it is hoped that in arguing for greater conservation in tooth preparation some improvement may develop in our present technique with this end in view.

Stanley T. Floyd,
1401 C. P. R. Bldg.,
Toronto.

Notes

Dr. Harold E. Embree, a graduate of the University of California and five years a captain in the Dental Corps, complains that the state of New York refuses him a license.

Dr. Geo. S. Caesar, one of the most prominent dentists of Canada, died July 13th, 1923. An obituary will appear later.

The British Columbia Dental Association held its annual meeting in Vancouver July 6th. Dr. Pime, of Minneapolis, conducted a post graduate course as part of the general meeting.

Dr. Martin Friedland, New York, inhaled nitrous oxide gas as a means of committing suicide.

Dr. George G. Lowes, a native of Guelph, but who practised in Oklahoma, died of a heart affection August 1923.

Dr. Marion Joy, R.C.D.S., 1922, has taken charge of a dental clinic in the Women's College Hospital, Toronto.

Dr. G. M. Stutz was elected president of the Nova Scotia Dental Association.

Major Astor who represents Dover in the British House of Commons, has presented his city with a Dental Clinic.

Dr. E. D. Rivers of Windsor, Ont., was robbed of his personal belongings by thieves who entered through a skylight.

FOR SALE—Complete Dental Equipment in old established office. Price $500.00. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

FOR SALE—In London, contents of one of the best equipped dental offices. Best location, old established. Address A.B.C. C/o Ash-Temple Co., London, Ontario.

TO RENT—Office to rent for dentist. Attractive location. Three medical doctors in same building. 345 Church St., Toronto. (Corner Gerrard St.). Apply Janitor.

Dominion
Dental Journal

Vol. XXXV. TORONTO, NOVEMBER, 1923 No. 11

Traumatic Torque

Andrew J. McDonagh, L.D.S., Toronto.

Read before the Southern Academy of Periodontology, Atlanta, Ga.

Mr. Chairman, Ladies and Gentlemen,—Allow me to express my appreciation of the very kind remarks of Dr. Adair in introducing me, also an appreciation of the honor done me in inviting me here.

The subject of my discourse to-night has been announced through your programme as "Traumatic Torque." As that term may not be familiar to all of you, probably it were well to explain what is meant by it and by a few other terms which we must use during the course of the discussion, therefore, we will have the first slide which is one giving definitions as follows:—

> Torque—A twisting or turning force about a fulcrum at a more or less fixed point.
>
> Dental periclasia or periodontoclasia—A breaking down or destruction of the tissues surrounding the teeth.
>
> Centric occlusion—The relation of the inclined planes of the teeth when the jaws are closed in the position of rest.
>
> Eccentric occlusion—The relation of the inclined planes of the teeth when the jaws are closed in any of the excursive movements of the mandible.

Traumatic Torque of course would mean a torque which causes trauma.

One very evident sign of the progress of education in dentistry is the upsetting of long held beliefs and teachings and the changing of long practised methods which were till recently the most perfect known. Take for instance the attitude of the dental profession towards gold foil fillings, and also towards pulpless teeth and their treatment as to whether they should be retained or not, and, if retained, towards the divers doctrines as to how best to retain them. All of these questions are, and have to be, discussed from all standpoints so that the best teaching and the best methods may be attained. It is obvious that differences of opinion must arise and must be settled before the best results and the greatest good may accrue.

Just as a great deal of difference of opinion arose over the best method of treating teeth in which the pulp was exposed, so also does there seem to be at present a great deal of difference of opinion between the orthodontist, the prosthodontist and the periodontist as to the preservation of the natural shape of the cusps of teeth.

About twelve years ago, I listened to Dr. C. N. Johnston explaining to the Toronto Dentists the advisability of reducing the size of deep cusps of upper bicuspids. As a result of that advice a great number of teeth have been saved from fracture and many operations have been a success that otherwise would have been a failure. Since that time other teachers have taken up the question of interlocking cusps from different standpoints, studying them from all angles both in centric and eccentric occlusion. The study has been very profitable and from the periodontist's standpoint one of the most absorbing studies of the whole question.

As you know, there is a school among the prosthodontists who seem to think it necessary to grind practically all of the cusps away in full denture work; but as long as it relates to full dentures their work does not materially interfere with the periodontists. It is different, however, when we step into the realm of the orthodontist. Certainly, for the good of the patient the periodontist and the orthodontist must understand each other and work together, and in order to facilitate their work and make it more accurate they must be familiar with the investigations which have been carried on by the prosthodontist regarding the movements of the jaws and teeth.

Dr. J. Lowe Young a few years ago headed a crusade to teach the dentists the advisability—in fact, the necessity of reproducing the anatomical shapes of the teeth in making restorations; but some of his disciples have gone further and have tried to improve on Nature by making the cusps deeper and larger than Nature ever intended them to be. There is a common ground for the different branches of dentistry to stand on, based on scientific principles—rational and practical. The extremist may do more harm than good.

Only a short time ago, dentists for the first time heard of

Traumatic Occlusion. Whether Dr. Paul Stillman or Dr. John Oppie McCaul first conceived the term I do not know, but to Dr. Stillman is due the credit of bringing traumatic occlusion to the attention of the profession, and his efforts were nobly seconded by Dr. McCaul. In their book, ''Clinical Periodontia,'' certainly traumatic occlusion does not suffer by its absence, and by being so persistent in keeping their views in the limelight the authors have rendered a service for good. Never, however, has any new doctrine been preached and accepted that someone has not become too enthusiastic over its merits—and this condition is one which has followed the teaching regarding traumatic occlusion. If we paid attention to the expounders of the merits of this doctrine, there is nothing in dental periclasia that is not the direct result of traumatic occlusion, and a great deal of harm has been—and is being done, by that fact.

After Dr. Stillman came to our city, read a paper on the subject and demonstrated his methods in my office I had my engine put into proper condition, obtained a new set of stones, carbon paper, etc. I took the matter up seriously and I must say, in many cases, results were satisfactory; but I soon found that there was something wrong in the conception I had of the teaching. I could not always be proud of my results; then I heard other men complaining of their results. Therefore I made a serious study of mouth conditions which might be treated with success by grinding and learned to operate conservatively and I believe, with greater benefit to my patients.

The unfortunate thing about treating for traumatic occlusion is that if one treats to excess, that is by grinding too much, it is difficult if not impossible, to repair the damage done. No doubt, by this time every periodontist has seen the effect of grinding by the aid of carbon paper to relieve traumatic occlusion, and we all have observed successful operations of this kind. But unfortunately, we have also seen cases in which the dentist has first ground all the cusps off the teeth on one side of the mouth then off the teeth on the other side of the mouth, without getting the results he desired. As a consequence he again uses his carbon paper and the grinding starts all over again, till the poor patient has no place that is comfortable to rest one jaw against the other and I have seen patients in great distress as a result of this procedure. I have also met other periodontists who have come across similar unfortunate results, ranging all the way from a serious nervous condition to a condition of distinct discomfort. Dr. Tom Smith in a paper read before the National Dental Association, Milwaukee, Wisconsin, August 15-19, 1921, says "Not only is the patient condemned to a great deal of discomfort, by this mode of practice, but he necessarily loses the proper function of the teeth ground."

Nature did not put cusps on human teeth for a joke; they have a function to perform, and when you rob them of their function you injure their possessor. In saying the foregoing, I am not unmindful of the fact that as a person grows older the cusps would naturally be ground down to a certain extent, and we have to take that into consideration in our work. For instance, a man of sixty years who has lived a vigorous life would not be expected to have as sharp or as long cusps as the man of thirty years; but we must also remember that many of our patients acquire habits which are injurious to the teeth, such as chewing tobacco, much of which is impregnated with fine sand which acts as a grindstone. Consequently their teeth are permanently ground down and we sometimes have to restore to a degree the lost cusps for masticating purposes, to correct traumatic torque and to improve the hearing.

Just while we are on this point, let us examine the teeth of the Esquimaux. He has been spoken of the world over as possessing beautiful, strong teeth and keeping them to old age. Well, he is so blessed as long as he keeps away from the white man's civilization and ways. The teeth of all the Esquimaux skulls I have seen were ground down to a very great extent, due, no doubt, to a habit they have of using their teeth for many things for which other nationalities employ metal instruments, as, for instance, softening leather, making thongs and fixing fishing tackle and so forth. But, notwithstanding the fact that the Esquimaux' teeth are ground down so far that in many cases the pulp cavity is exposed, you will find very little evidence of destruction of the alveolus. And if there is destruction, invariably that destruction will be the crest of the alveolus. If traumatic occlusion is as ordinarily understood the result of one tooth being ground down faster than its neighbor surely the Esquimaux would provide ample material for demonstrating this particular condition. Becauses it is almost inconceivable that all of the cusps of all the teeth of all of the Esquimaux would be ground down evenly all the time. No doubt, had the Esquimaux cast metal inlays or crowns, or even hard occlusion fillings, there would be another story to tell on account of a torque which would be produced as a result of faulty construction or because metal does not grind away as readily as tooth substance or both. It may be said that the great use the Esquimaux makes of his jaws and teeth strengthens the investing tissues to such a degree that pathological conditions of the periodontium are more difficult to produce, and no doubt there is a good deal of truth in the assertion, but that does not entirely solve our problem.

This brings us to the teaching that traumatic occlusion is a primary cause in dental periclasia. I have no hesitation in saying that traumatic occlusion has never, and could never, be a primary etiological factor in dental periclasia, because you have always to go back further to find out what was the cause of any abnormal occlusion. Was it the irregularity of the teeth? the malformation of the teeth? the loss of the teeth? improper feeding during infance? or some other cause? There always is a reason for malocclusion, and that reason would be your primary cause in your malocclusion or your traumatic occlusion. Consequently, we must always look for some contributary cause for dental periclasia other than unusual wear in mastication. And wear that would reduce the length of all the teeth on one side of the mouth, except one particular one, would be indeed unusual; or rather, that that condition would remain for any length of time would be extraordinary. But it is quite conceivable that in the process of grinding the teeth on one another one cusp of a tooth might not be ground off evenly and would produce an obstruction to the eccentric movements of the teeth, thereby causing a distinct leverage, or torque. This uneven grinding and unnatural shaping of the teeth in the process of mastication is a condition which must be dealt with in this essay. In order to understand this condition and know what is best to do to rectify it we must understand the forces used in mastication, the movements of the jaws, and the anatomy of the teeth and jaws. In studying this subject the forces used in swallowing are necessarily taken into consideration.

And let me say at this point that we do not pay enough attention to the forces used in swallowing—in fact, many of us pay no attention. But if we study our patients, we find that to a great extent the health of all the investing tissues of the teeth, the health and usefulness of the eustachian tubes, and the tone and strength of the muscles of the jaw, depend to an almost unbelievable extent on the act of swallowing. Students of animal life have made the assertion that the great strength and agility of the cat family depend to a great extent upon the habit of the cat family of stretching its different sets of muscles, putting them into fairly gentle exercise habitually. Whether that is true of the muscles of the cat family or not, and I believe it is, it does not require a very great power of observation to know that individuals who go around with their mouths open and their jaws flabby produce flabby muscles; principally masseter and temporal, and will have, as a rule, unhealthy saliva, chronic gingivitis, often malformed arches and throat trouble—and some orthodontists say that these individuals are apt to have elongated molars and bicuspids. Nor is it any wonder that this train of evils would follow this pernicious habit, because Nature intended that normally we close our teeth tightly together, exert a pressure of six or eight pounds on them, and swallow about once a minute, or hundreds of times a day.

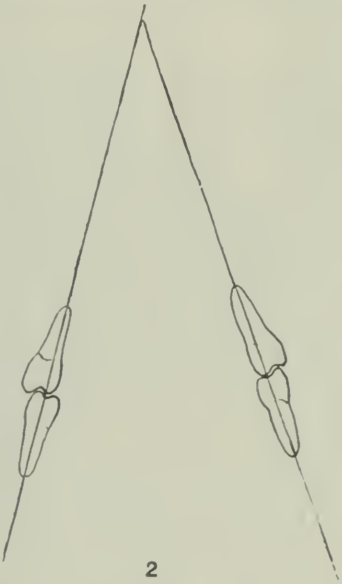
Now, besides giving the muscles of mastication their proper exercise, helping action of the salivary glands, cleaning out the eustachian tubes and buccal and labial cavities of the mouth, this act of swallowing empties the blood vessels in the pericementum and brings a new flow of fresh blood to the tissue. This, as is readily seen, is of vital importance—particularly to the venous system. And of course the capillaries are also greatly benefited, to say nothing of the lymphatics and the stimulus given to the attaching fibres.

The question naturally arises: if this act is of so much assistance to us in our work, in what way can we be of use in getting our patients to perform it properly. I say ''perform it properly'' advisedly, because if the pressure exerted in the act of swallowing is not in the proper direction, it not only does no good, but it actually does harm to the periodontium.

In the first place, it is our province to see that our patients have no tender tooth or teeth, because if any of the teeth are tender the patient will perform the act of swallowing by shoving the tongue into such a position that the teeth do not actually come in contact. This habit will grow on them until they learn to swallow with their mouths wide open. In such a case, it is not only our duty to eliminate any tender spot but we must teach the patient to again get into the habit of swallowing properly. In order to induce your patients to perform the act of swallowing properly, you will find that it will be necessary to teach them what the act of swallowing stands for and how they obtain benefit from it.

There is another factor in the case which greatly assists in making the act of swallowing a pleasant one, that is, if the teeth have one definite place to rest in eccentric occlusion where the cusps of the occluding teeth are in proper juxtaposition, so that the jaws do not slip over one another like a smooth tire on a greasy pavement.

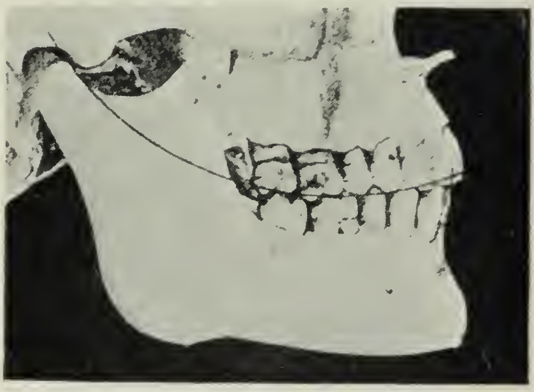
Fortunately, the condition of the teeth which makes it a pleasure to swallow also is quite compatible with the best condition of the teeth for mastication and the protection of the soft tissues. In mastication, investigators—particularly those who have studied prosthetics—have shown us that the force of occlusion should always be at right angles to the long axis of the teeth. This doctrine can be deduced from Bonwell's teaching, Gisy's teaching, Hall's teaching, Monson's teaching, Cummer's teaching, and many others. This is always true of normal centric occlusion, and the nearer we can get to it in eccentric occlusion, the more surely will we avoid pathological conditions.



2

Let me illustrate by (slide 2).

You will note that although the cusps of the lower teeth are inside the cusps of the upper teeth, the apices of the roots of the lower teeth extend further out than the apices of the roots of the upper teeth. Furthermore, in the act of mastication, the lower teeth are placed outside of the upper teeth and moved towards the centre. The motion in mastication is never applied moving the lower teeth from the lingual cusps of the upper teeth towards their buccal cusps, which means that Nature intended the force of mastication to be taken care of by structures strong enough to care for it. And in a normally occluded denture the cusps are never so long that this motion applies a direct lateral force to either the upper or the lower teeth. In other words, the force is never at right angles or even near right angles, to the long axis of the teeth. Nature has provided for this by placing the teeth and the condyle in what is known as the compensating curves of Spee as shown in figure 3.



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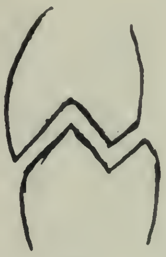
If all sets of teeth were shaped normally and placed normally and used ideally, we would need very little, if any, help from the dentist. Sometimes, however, cusps grow too long, and are not placed in proper alignment, or are ground to an unnatural shape, either by the dentist or by some habit of the patient—or we may have restoration, such as an inlay, crown or filling, which is made without due regard to anatomical forms. Then the services of the dentist or periodontist are necessary.

Let us consider the case of an upper bicuspid with an abnormally long buccal cusp which has had its lingual side ground so that the sulcus is of a deep wedge shape which receives the cusp of the lower bicuspid which has been shaped to the form of a wedge as figure 4. When these teeth are in centric occlusion, they will be as figure 5 but in the movements of the jaw in mastication and, to a less extent, in swallowing, the cusps will come in contact as in figure 6 the whole force being directed in the line of the arrow, instead of as in figure 2, the ideal method, the long axis of the teeth. The work of Dr. Monson, Dr. Cummer and other men who have made a special study of the lines of force used in mastication is of inestimable value to the periodontist and helps materially in explaining this question. Whether we believe that the teeth are by nature so placed that their inner surfaces rest perfectly on an imaginary sphere or not they conform so closely to that position that in practice we can take it for granted and having that idea in mind enables one to work to an ideal that otherwise would be lacking. In pursuance of this teaching figure 7 shows the lines running through the long axis of the teeth, converging so that they meet at a common centre, just one step further than we made when considering the force used on the bicuspid teeth earlier in this essay.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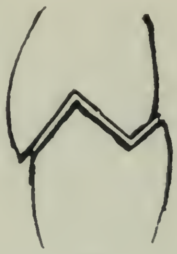
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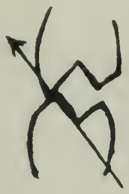
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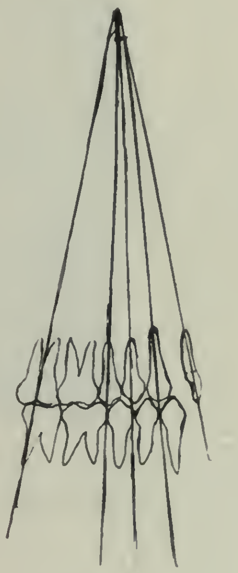
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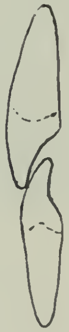
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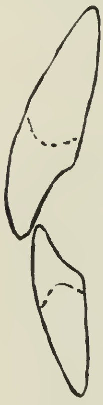
Now let us look at the cusps in normal occlusion, as illustrated in slide 8. See how beautifully rounded these cusps are and note the great amount of efficiency obtainable in mastication in comparison with the wedge shaped cusps, not to speak of traumatic torque which may result even in centric occlusion because the cusps of the opposing teeth are rarely ground so true that there is no torque.

The same description and illustration will answer for the molar teeth.

The illustration of the lines passing through the long axis of the teeth and meeting at a given point as shown in Figure 7 is abundantly evident in the molar and bicuspid teeth and in normally shaped teeth and jaws, in the anterior teeth also. But if there is a deviation, we are likely to find it anteriorly and when we have traumatic torque in the anterior teeth, we have to deal a little differently with it. We are not dealing with teeth which have a number of cusps used for mastication. We are dealing with teeth whose function it is to cut off—consequently called the incisors. The upper incisors overlap normally, according to the length of the cusps of the molars and bicuspids, but the contact is a single point, as in figure 9. Now, through the habits of mastication, improper development, the grinding down of the distal teeth and so forth, we may have a large proportion of the labial surface of the lower incisors in contact with the lingual surface of the uppers, as in figure 10 and invariably in this case you will have a great lateral pressure at right angles to the long axis of the teeth, resulting in increasing the torque to an unnatural extent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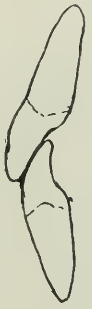
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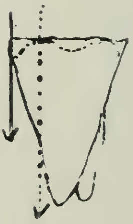
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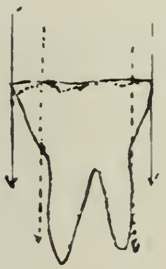
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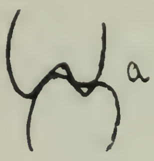
There is just one more condition which I want to call your attention to—namely, when a molar or bicuspid tooth which is fairly long has its cusps ground down till the grinding surface is flat, as in figure 11, and the force of mastication comes on the periferal margin of the grinding surface, you will observe that, on account of the loss of the rounded cusps, you have a wider grinding surface and the force of mastication strikes further than normally from the centre of the tooth, at the point causing an unnatural leverage or torque which usually is capable of causing trauma.—Figure 12.

What is the remedy for all these abnormalities? We will consider the case just described first. Let us consider the teeth ground down, as in figure 11 and 12, and let us try to restore these teeth to as nearly as possible their original form and see what we get. It is not necessary after seeing this illustration to dilate on the very great improvement and benefit to this tooth. Sometimes you cannot restore easily the sulci without inlays—particularly in the young—but if you can, so much the better. What is the procedure in the case of the molars and deep-cusped bicuspids, as shown in figures 4, 12 and 5. We must restore to normal without shortening the teeth or closing the bite as in figures 14, 11 and 12 dotted lines.



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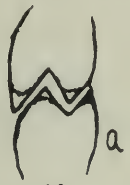

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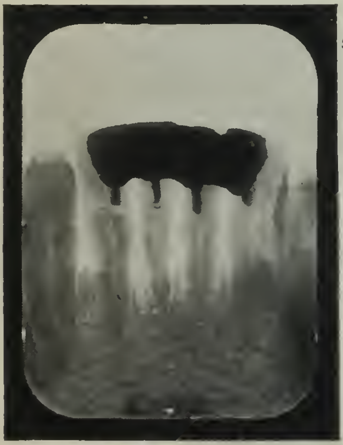

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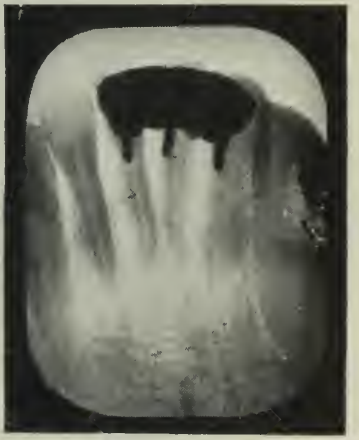

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It is sometimes more difficult to rectify a traumatic torque in the incisors—particularly such a one as shown in figure 10, without having an unsightly result. In order to relieve the unnatural strain you must grind—and often you cannot grind the labial enamel of the lower incisors. Therefore, you have to grind the lingual side of the uppers, where they come in violent contact with the lowers. One more difficulty you have to deal with here is, that the lowers have a tendency to repeat the conditions. In order to prevent this, the gingival crevice must be kept healthy and the occlusion of the distal teeth must be kept as nearly normal as possible. But if, with all precautions you take, the conditions return, you are justified in splinting the lowers on the lingual side without devitalizing the teeth as shown in figures 15 and 16. These splints have now been in place ten or eleven years and the teeth have not moved in that time, although they were very loose when the splint was put in place.

In studying traumatic torque in the anterior teeth with a view to its correction, one must not forget that the force used normally in the act of incising with those teeth is governed by the motion of the lower jaw, which moves from anterior to posterior, bringing the force applied more nearly in a line with the long axis of the upper teeth—thereby helping you out quite materially.

A study of the forces applied normally and their effects is interesting, but would make this paper too long. Abnormally applied forces we must always be on the look out for, as, for example, the habit some patients have of shoving their lower teeth forward to catch the uppers.

What about the teaching of the orthodontist? As a rule, it coincides with that of the periodontist, but not always. Shayes attributes the following two cuts to one of the world's best orthodontists, Dr. J. Lowe Young's figure 17 is the lingual view and figure 18 the buccal view of two occluded jaws. These were published as being nearly perfect. They please the orthodontist because the cusps lock the teeth so securely; but from the facts brought out in this essay, is there not quite an amount of criticism due this occlusion? Note the long cusp on the second molar and all the sharp cusps. Also mark the amount of bone destruction at the crest of the alveolus. I am not saying the destruction of the bone is the result but there is the suggestion. Had you or I this case to examine, we would immediately want to eliminate those overhanging and long sharp points of the cusps and make it into a case similar to figure 19 which, from our standpoint, is more nearly perfect.

What reasonable explanation is there for the dire effects of traumatic torque?

At the last meeting of the Ohio State Dental Society in December 1922, Dr. Arthur Black exhibited a slide prepared by Dr. Noyes, which showed the arteries, veins and lymphatics in the pericementum. The pericementum is not a very thick, though fibrous material, and it would not take a very strong blow to crush any soft material contained in it. The arteries, having elastic tissue in their coats, would easily recover; but what about the veins and lymphatics, which are not so well protected—particularly when the traumatic force takes place several hundred—probably several thousand—times a day in the force of mastication and (if the torque is great enough) in the act of swallowing, considering that the blood is constantly being driven through the arteries, you must have a constant return; that is, you must have your veins and lymphatics unimpaired or you are bound to have local disturbances. I would expect a similar condition to obtain in the gum or gingival tissues when salivary calculus is pressing on those tissues but the effects would not be so serious or so great.

So much attention has been paid in the foregoing to traumatic occlusion and traumatic torque, that one is apt to think there is no other side to dental periclasia. On the contrary, one who observes will note in many mouths conditions which appear sufficient to cause any amount of torque and trauma and no pathological conditions resulting. Furthermore, in the practice of the essayist and in the practice of numbers of other periodontists, for years little attention was paid to the occlusion, except in very evident cases, and good results were obtained—so much so, that after I had been practising for about ten years I had an account made of all the cases which had been treated in my office for dental periclasia, and 98% were reported as having been completely cured; of the other 2% some were partially satisfactory—a few were failures. Of course, there were some we could not get track of at all, but this number was very small, as all of the cases were sent me by dentists who kept very good record of their patients. Today, I will say that one need not have one per cent. failures, and if traumatic torque is rectified you will not likely have recurrences. Furthermore, you do not need to have your patient coming back to

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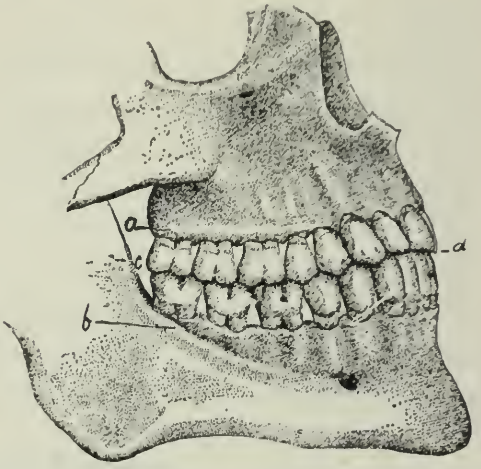
you every month, once in three at most, and generally once in six months being often enough—and at that you will not have much to do, provided you instruct your patients how to care for themselves.



19

In our work we are dealing with living sensitive tissues if a filling or a crown is inserted which is too long, the patient will be uncomfortable because of the unnatural impact and trauma. This will occur sometimes without much, if any, protest from the patient. It is our business to rectify that condition. But if a tooth raises partly out of its socket, so that it is in severe contact with its opposite fellow, there is a reason for it which we must find and rectify. Merely grinding that tooth down, is bad practice. Have a regular order of investigation and treatment.

As to the order of treatment. Our first duty is to get a good pair of study models, mounted in an articulator which will approximately reproduce the movements of the jaws. Next, treat the gingiva and the rest of the periodontium so as to reduce the inflammation and get rid of the infection present. Ligate the teeth in place, if they are loose. Then, with the study model in hand, grind the necessary surfaces to bring the occlusion to as nearly normal as possible.

I have said nothing about X-rays. However, they are something of great use to us. Often they do not help us at all—but they are always good to tell us of abscesses or septic teeth and, generally speaking, are very desirable.

In conclusion, I want to draw your attention to the fact that in traumatic torque we have an explanation of the cause of many suppurating pockets of obscure origin, which were difficult to eliminate permanently. Inasmuch as the traumatic torque destroyed the efficiency of the veins and lymphatics of the pericementum.

I also want to draw your attention to the value of the normal act of swallowing.—Also to the crime of grinding away cusps promiscuously. Also that rectifying an occlusion will not alone cure a diseased periodontium. Also that there is no disease of the periodontium, short of its destruction, which is not amenable to treatment. Also that study models for this work are essential and easily made—a good compound impression being sufficient and an approximate anatomical articulation accurate enough.

Simple Antrum Treatment

J. Neelands, L.D.S., Lindsay, Ont,

In January, 1918, a patient called complaining of what be believed to be catarrh. He reported having a tooth extracted some three months previously and that the place the tooth came from had not healed. There was a good deal of pain, sleeplessness and discharge of bloody pus. The opening under the antrum was about five-eighths of an inch long and one-fourth of an inch wide, which seemed to be filled with a fungus growth. The writer always keeps a solution of pure carbolic acid and gum camphor for use in whatever strength may be required. A few drops of this solution were put into two ounces of distilled water and used to syringe out the cavity. This was done daily for three weeks when the opening began to close and the pain to subside. A drainage tube had been made but the opening closed so much that it could not be inserted, so a small nozzled syringe was used until healing was complete. The patient used a solution of Listerine for some months. Mr. Lloyd Wood, manufacturer of Allenbury's baby food, is the sole agent for Listerine in Canada. In nine months the trouble was completely cured. It is now more than five years since the treatment was begun and there has been no evidence of its return. Too often antrum cases recur.

A Few Days in Leeds

A. E. Webster, L.D.S., M.D.S., M.D.

It is no easy matter to gather up the belongings of five people and transfer them from one city to another in a strange country, especially if all the party are not going to the same place. When the luggage is labeled and sent off, the servants duly tipped and the tickets bought, there comes the difficulty of finding a suitable compartment in the train. In trains for short journeys there are no means of redistributing the passengers after they start but in trains for long trips there are corridors along the side of the car from which each compartment may be entered. In many trains there is no communication from one car to another. This makes it imperative to get properly located before starting. Generally speaking English people carry less luggage than Canadians. English railways take little responsibility for their passengers' luggage. They provide a van in which the passenger may place it and from which he must remove it at its destination. The passenger must pay for the service of having it placed in the van and removed. We left Edinburgh at ten a.m. after a hard struggle to get everything adjusted to suit all the party. The destination of the family was the lake district and the writer, the City of Leeds. At Carlisle, the border city, we parted. The railway from Carlisle to Leeds runs through a most beautiful stretch of country where "leading hay" was the chief occupation on Saturday, July 19th. "Leading hay" means hauling it to ricks or stacks. Being somewhat interested in agriculture, I one day asked the meaning of the expression "leading hay". I was told it came from the fact that a man always leads the horse which hauls the cart-load of hay. The expression is usually applied to the whole hay-making operation.

As the train flew over the bridges, darted through the tunnels and dashed down the hillsides, one marvelled at the smoothness of its running. As the more thickly populated districts were reached, every green field seemed to be covered with holiday makers. Cricket, tennis, golf, miles of it. I got my first meal on an English train on this trip. It was better served, a better meal and for less money than a similar meal in a railway hotel. There is no open dining room as in an American train. The meal is served in a compartment, more or less private. There is a system of railway hotels in all important English cities which is a great convenience to travellers. The passenger can, without difficulty or inconvenience, go directly into the hotel and have his luggage delivered to his room. I registered at such a hotel in Leeds about three in the afternoon. Just to get acquainted with the city before I called on my friends, I went out for a walk and, before going three blocks, I saw a great crowd of people gathered around a wagon at a street corner and a man speaking in a loud voice. There was a by-election on. Sir Thomas Wilson, a local business man of great popularity, was opposed by a labor candidate from London. One would hardly think a non-resident candidate would have a chance against a local hero, but the Conservatives were taking no chances. There were dozens of such speech-makers about the city for the next five days, for the voting was to be on Thursday. The labor party speakers seemed to collect in largest numbers at the City Hall Square where there was continuous speaking from early evening until late midnight.

A stranger cannot help being impressed by the earnestness of the speakers of both parties. They are real political meetings, no barnstorming speeches but a serious discussion of political issues where every view may be freely expressed without fear of personal resentment. The speakers are fluent, mild in temper, wonderfully informed on world politics and international relations, trade, commerce, social reform and religion. Every aspect of life had its attention during these speech-making days. A Canadian is impressed with the courtesy, the fairness and the gentlemanly manner of attacking an opponent's arguments. The speaker or heckler neither asks nor gives quarter to his opposition but he is fair withal. This speech-making went on all day Sunday and every day until the voting day. All the noted Labor leaders were there even to the four members who were expelled from the House for calling the ministers "murderers" because they would not supply milk to the children in the schools. At such times all shades of political, religious and social cranks have a chance to air their views. Among the speakers there did not seem to be any clear-cut policy in detail. It seemed just a mass of indefinite idealists grouped under one head, labor. The conservatives won by over three thousand of a majority.

The political compaign became so interesting that I almost forgot that I had friends to visit and certain professional obligations to fulfill. Sunday morning the church question arose again. As usual there was difficulty in finding a church or what time the services were held. I have more sympathy now for the hotel clerk who does not know when the services are than I used to have, because I found out that each church has its own time and it may or may not be the same as any other in the Kingdom. Morning services start early in the morning and may occur at any minute of any hour up to twelve o'clock. There is individuality in running things in England from churches to motor cars. However, I went to Holy Trinity at 10.45 and was five minutes late. There was a splendid choir, a good sermon which lasted fifteen minutes, forty-six people present including the choir, clergy and all.

The afternoon was spent with Sir Michael and Lady Sadler at the quaintest old home and most charming garden it has been my privilege to see. Plans were made for the next day's meetings which were to include an address to the Leeds Luncheon Club at noon and the Leeds Dental Society and the medical faculty of the university in the afternoon and evening. In addition there was a dinner at the North-Western Hotel.

In front of the hotel was a fine big horse with harness profusely decorated with brass. He was attached to a wagon that looked for all the world like one of the old Grand Trunk wood-burning locomotives of railway construction times. Lots of shining brass, blazing fire and steam. Closer observation revealed what is known as a potato wagon where small boiled and partly roasted potatoes are sold in their jackets to passersby during the whole night. The potatoes are kept hot in a big black pot beside which is a pot full of salt. The driver said there used to be seventeen such wagons in Leeds before the war but now there were only four because drivers could not be found who would stay sober all night. This business has been in the same family in exactly the same form for over three hundred years. It is not now found in any other city. ''When in doubt, follow the family job'' seems to be acted upon in England.

A great manufacturing city like Leeds impresses a stranger with its diversified interests. Its people talk glibly of every country from which its raw material comes and to which its finished products go. Business men go and come from all parts of the world. If one interest fails maybe another does better. Even now when every business feels the pinch, Leeds is going ahead. There isn't a house for rent in the city. All complain of hard times but the people are well dressed and apparently well fed. As one man put it, "Times were never worse and people were never more extravagant."

On Tuesday morning, I dropped into a hotel to find out from "boots" what time I could get a train for Penrith in the lake district. Assistant "boots" said chief "boots" was out. I replied that I was not so much interested in chief boots as I was in the time I could get the train to Penrith. He came back with, "I expect him soon, sir." I said, "Look up your Bradshaw and let me know." But he only sidestepped the point again. As a matter of fact this assistant boots knew all about trains but it was not his job to give out such information. I'm not sure that he might not be entitled to the tip or that it would be presumption on his part to give such information. Porters around an English hotel can do only what is within their sphere and besides there is a regular system of division of labor so that as many as possible can get in on a job. To get from a railway carriage to a room in a hotel usually requires from four to five separate tips.

After spending a part of the day in visiting dental friends and the university, I boarded the London and Glasgow train which had not made a stop between London and Leeds nor would it stop again until it reached Carlisle. Just as the train was about to pull out, I remembered that my trunk was in the van addressed to Penrith and as might be expected it was not being put off, so I had to have the guard hold the train for a few minutes. Since my train to Penrith did not leave for an hour or more something had to be done with that trunk or else stand beside it. Nothing could be done except hire a porter to keep watch over it. There is no system of checking a trunk. A coat or bag can be checked but not a trunk. Most travellers in England and especially in Europe have their luggage in such form that it can be carried independent of porters, trains, carriages or taxis. Transportation of heavy luggage is a nuisance.

The Accomplishments of the Cleveland Meeting

John P. Buckley, D.D.S., President A.D.A.

The recent Cleveland meeting will stand out in the history of dentistry as one long to be remembered. The character of the programme for the general sessions; the full attendance at each section meeting; the clinics; the great health exhibit; the display of the latest and best in dentistry on the part of the many exhibitors; the complete and detailed arrangement of the local committee; the big attendance, et al, combine to make the 1923 meeting the largest and most interesting yet held by the American Dental Association. But a meeting however large and enthusiastic at the time would not leave its impression on the fair escutcheon of dentistry unless something big and constructive was actually accomplished—some movements begun which tend to stamp our profession among the cultured and learned professions of the times. Let us review the Cleveland meeting and note the big things actually undertaken, which, when carried out to their fullest function, will stand as beacon lights in the history of dentistry.

One of the biggest things done by the House of Delegates was the raising of the dues of the Association to $4.00, beginning with the next fiscal year. This was made possible at Cleveland by reason of a resolution lying on the table from the previous annual meeting in relation to the raising of dues. Many of the component state societies for some years past have been assessing their members one dollar each for the work of the Research Commission; and a few of the states also are now collecting one dollar per member for the Relief Fund Endowment. For those states now contributing one dollar per member both the Research Commission and the Relief Fund Endowment, the raising of the dues of the Association to $4.00 has no effect, for they are now contributing this amount. Every member of the American Dental Association should gladly and willingly contribute to these two essential and necessary funds; but experience has taught that the only way to bring about the highly desirable end and place each state on a just and fair basis, was to specifically raise the dues for the purpose. This, as stated, was voted unanimously by the House of Delegates at the second session at the Cleveland meeting.

When we recall that the raising of the dues $1.00 for those states already contributing this amount per member for research work, means only an added contribution of less than 2c. a week; and when it is known also what great things can be accomplished for dentistry by this small increase in dues, every member of the Association will gladly welcome the change in the Constitutional and Administrative By-Laws making this possible.

The $4.00 dues are to be expended as follows: Two dollars for general expense of the Association and for the publication of the Journal, as has been the custom in the past; the remaining two dollars to be apportioned to Dental Research, Dental Education, a Dental Library, and Dental Relief, as follows: one-third to Research; one-third Education; one-sixth Library and one-sixth Relief. On the basis of our present paid membership, over 30,000, this will give annually over $20,000 for Dental Research, $20,000 plus for Dental Education, $10,000 plus for a dental Library, and $10,000 plus for immediate relief purposes when worthy cases are presented. The plan for relief carries with it the raising of a like amount contributed by the parent association from each local and state society in which state the applicant resides. It will be seen therefore, that the plan for relief adopted at the Cleveland meeting makes it possible to raise a fund of over $30,000 for the year 1924, if worthy cases are presented. It also serves as a check on any particular state or community calling on the Relief Fund Endowment of the American Dental Association for more than that to which they are justly entitled.

Let us examine the need for the proper and wise expenditure of the amount of money thus raised by the small increase in dues. First—Dental Research—It matters not how much has actually been accomplished to date by our researches receiving grants from the Research Commission, the fact that the spirit of research is evident on every hand is worth all the effort put forth along this line; and in the days to come some great definite thing will surely result. Concentration of effort and thought along any line will ultimately solve great problems, and no one will deny that there are many such confronting dentistry today.

Second—Dental Education—Viewed strictly from the standpoint of dentistry, this problem is the biggest one before us today. The time has come when dental education should be directed and controlled by organized dentistry. This means the A.D.A. working in conjunction with such bodies as the American Association of Dental Schools, and the National Association of Dental Examiners—the membership of both latter organizations are wholly composed of members of the A.D.A. The fund now raised annually for the control of dental education will permit the continued functioning of the Dental Educational Council, which has done so much, and the stationing of an all-time Director of Education in the office of our Association where all records may be kept and made conveniently available for all those interested.

Third—Dental Library—The $10,000 annually for a Library will permit of an all-time Librarian—the building of a library second to none, the indexing of all dental literature, national and international, and the codification of the dental laws of all states, provinces and nations.—What will this mean for our researches and for dentistry in general? Its value can not be estimated.

Fourth—Dental Relief—Last, but by no means least, comes dental relief. For years an effort has been made to raise a fund sufficient so that the interest could be used for relief purposes. The combined efforts of the past has raised a fund of some $98,000.00. This safely invested would bring in less than $5,000 annually for actual relief. Compare this to the possible $30,000 made available for immediate relief by the plan adopted at Cleveland.

There was a great story told at Cleveland. It is to be regretted that the entire membership of the Association was not present to hear and learn the story. Part of it has here been repeated for the benefit of those not present. Ask your delegates for other things accomplished, and pay your dues to the American Dental Association with the feeling that it is the least one can do for a great cause.

Relief for Russian Dentists

Editorial in the October Journal of the American Dental Association.

At the 1922 meeting of the International Dental Federation in Madrid, Spain, a communication was received by the President of the Federation, Dr. Truman W. Brophy, from one of the Russian members, Dr. Daubry, outlining the pitiable plight of many of our colleagues in that country. When the soviet government assumed control, it, in accordance with its avowed principles, confiscated all private property, including the instruments and appliances of dentists. What became of these instruments no one seems to know, but the net result was that the members of our profession were left without the means of earning a livelihood for themselves or their families.

All the world is familiar with the wonderful rescue work of the Hoover Commission, whereby literally millions of the people of Russia have been saved from starvation. In a recent interview which Dr. Floristan Aguilar, Secretary General of the International Dental Federation, had with Mr. Hoover in Washington, the latter said: "We have done a great deal of good in Russia, feeding the children, healing the sick, and caring for starving women. At certain periods with money collected in America, we have been feeding 10,000,000 people, but it is true we have neglected to help the professional men. The work that you dentists are going to undertake is admirable, and if other professions would do the same, the fate of the intellectuals in Russia who today are the greatest sufferers would be different."

These are inspiring words from a distinguished man who knows the situation. Mr. Hoover has directed the distribution in Russia of $60,000,000, and this with an additional $18,000,000 sent over by the Jewish people, represents a grand total from America of $78,000,000.

But as Mr. Hoover has said the professional man has been overlooked. Thus it has happened that men of the highest cultural attainments, have with their wives and children been obliged to suffer deprivation and want, and in some instances have actually died of starvation. That this sad fate had overtaken some of the members of the dental profession of Russia is vouched for as reliable authority.

When these matters were brought to the attention of the Federation this body commissioned its Secretary-General, Dr. Aguilar, of Madrid, to go to Russia and make an investigation of the existing conditions, and report his findings.

This he did, and returned from Russia to Madrid about a month before the meeting of the American Dental Association at Cleveland. Coming to America, he placed before the Board of Trustees and the House of Delegates of the Association the facts as he had ascertained them. He found our colleagues of Russia almost without exception in actual want—some of the distinguished men of former days not even having a shirt to cover their back.

More than 400 letters have been received by the International Dental Federation from Russian dentists portraying the most pitiable conditions, and making an appeal that would rend the heart. Dr. Aguilar has shown the editor and many others these letters and they are of a character to leave no doubt as to the deplorable state of affairs. Their appeal is unanswerable. The dentists do not ask for charity. All they desire is the opportunity of earning a livelihood.

As has been said they are without instruments, but the government last May receded sufficiently from its former position to grant permission to private citizens to own property. So these professional men may own instruments if they can secure them.

After studying the matter in conjunction with other men interested in the situation, Dr. Aguilar found that for fifty dollars, American money, a set of instruments sufficient to enable a dentist to pursue his calling might be procured. In all, it was estimated that fifteen hundred sets were needed, and it was hoped that the dentists of the world would see that these instruments were provided. When the American Dental Association learned these facts, it at once decided that it became the urgent duty of its members to raise its quota of this amount. There are approximately 90,000 dentists in the world, and a little more than 30,000 in the American Dental Association —which would make our pro rata five hundred sets. The House of Delegates immediately voted from its treasury $2,500 thus furnishing fifty sets. The remainder was provided for as follows: One half the income from the Relief Fund—which was greatly augmented this year by a raise of dues in accordance with a recommendation in President Buckley's address —would provide for one hundred sets. ($5,000.). There are approximately two hundred delegates, and these delegates pledged themselves to raise from their respective states a sum equal to two sets of instruments for each delegate—making 400 sets. It will thus be seen that our Association has provided for 550 sets—fifty more than its pro rata, for the reason that some of the countries of the world may not be able to raise their full quota on account of war conditions.

It is of interest to note how very prompt is the response to this appeal on the part of some of our societies. At the regular monthly meeting of the Chicago Dental Society held on September 18th, after listening to a statement of the conditions in Russia by Dr. Aguilar, the members at once pledged thirty-two sets of instruments, which represents the allotted quota for the entire state of Illinois. When the matter is brought before the members of the down-state organization this quota will undoubtedly be greatly raised, thus appreciably making up for the discrepancies in other countries already referred to.

It would hardly be fitting to close without a special reference to the splendid self-sacrificing efforts of Dr. Aguilar in this connection. He has whole-heartedly devoted his time, energy, and private means to the furtherance of this great philanthropy. While in Russia he became so impressed with the deplorable conditions among the members of the profession and their families, that he and Mrs. Aguilar—who accompanied him—gave away nearly everything they had, and arrived in Paris with only the clothes they were wearing, and seventeen francs in money. He has also sent out of his own private funds many sets of instruments to Russia and has the official receipt to show that they reached their destination safely.

It should be said in this connection that the Russian Government has guaranteed the safe delivery of every set of instruments, and has promised to transport them free of cost, and without duty. The Federation keeps a close check on every shipment, and the cars containing the instruments are securely sealed by the proper official, and not opened till the instruments are delivered to the dentists to whom they are consigned.

If there was ever an appeal to the dentists of the world which merited consideration, this is one. The International Dental Federation in undertaking this work is merely giving expression to one phase of its true function, and the fruition of this philanthropic movement will mean greater confraternity among the men practicing dentistry in every quarter of the globe.

Rules Governing the Admission of Proprietary Articles to the Book "New and Unofficial Remedies"

Definition of Proprietary Articles.—The term, "proprietary article," in this place shall mean any chemical, drug or similar preparation used in the treatment of diseases, if such article is protected against free competition, as to name, product, composition or process of manufacture by secrecy, patent, copyright, or in any other manner.

Rule 1.—Composition.—No article will be accepted for inclusion in the book New and Nonofficial Remedies or retained therein unless its composition be furnished to the Council for publication. For simple substances the scientific name and the chemical formula, rational or structural if known, should be supplied. For mixtures the amount of each active medicinal ingredient in a given quantity of the articles must be stated. The general composition of the vehicle, its alcoholic percentage, and the identity of the preservatives, must be furnished.

Rule 2.—Identification.—No article will be accepted or retained unless suitable tests for determining its composition are furnished to the Council. In the case of chemical compounds these shall consist of tests for identity and purity. In the case of mixtures, methods shall be furnished for determining the amount and active strength of the potent ingredients if practicable.

Rule 3.—Direct Advertising.—No article that is advertised to the public will be accepted or retained; but this rule shall not apply: (a) to disinfectants, germicides and antiseptics, provided that the advertising be limited to conservative recommendations for their use as prophylactic applications to superficial cuts and abrasions of the skin and to the mucous surfaces of the mouth, pharynx and nose (but not to those of the eye, and the gastro-intestinal and genito-urinary tracts) and provided they are not advertised as curative agents (see comments to Rule 3); (b) to nonmedicinal food preparations, except when advertised in an objectionable manner.

Rule 4.—Indirect Advertising.—No article will be accepted or retained if the label, package or circular accompanying the package contains the names of diseases in the treatment of which the article is said to be indicated. The therapeutic indications and properties may be stated, provided such statements do not suggest self-medication. Dosage may be indicated. (This rule shall not apply to remedies with which self-medication is altogether improbable, to vaccines and antitoxins, or to directions for administering or applying remedies where similar immediate, heroic treatment is indicated.)

Rule 5.—FALSE CLAIMS AS TO ORIGIN.—No article will be accepted or retained concerning which the manufacturer or his agents ake false or misleading statements as to source, raw material from which made, or method of collection or preparation.

Rule 6.—UNWARRANTED THERAPEUTIC CLAIMS.—No article will be accepted or retained concerning which the manufacturer or his agents make unwarranted, exaggerated or misleading statements as to the therapeutic value.

Rule 7.—POISONOUS SUBSTANCES.—The principal label on an article containing "poisonous" or "potent" substances must state plainly the amount of each of such ingredients in a given quantity of the product.

Rule 8.—OBJECTIONABLE NAMES.—Proprietary names for medicinal articles will be recognized only when the Council shall deem the use of such exclusive names to be in the interest of public welfare. Names which are misleading or which suggest diseases, pathological conditions or therapeutic indications will be not recognized (the provision against therapeutically suggestive names does not apply to serums, vaccines and antitoxins, or to foods). In the case of pharmaceutical preparations or mixtures, the name must be so framed as to indicate the most potent ingredients.

Rule 9.—PATENTED PRODUCTS AND PROTECTED NAMES.—If the article is patented—either process or product, or both—the number of such patent or patents must be furnished to the Council. Furthermore, if the name of an article is registered, or the label copyrighted, the registration (trademark) number and a copy of the protected label should be furnished the Council. In case of registration in foreign countries the name under which the article is registered should be supplied.

Rule 10.—UNSCIENTIFIC AND USELESS ARTICLES.—No article will be accepted or retained which, because of its unscientific composition, is useless or inimical to the best interests of the public or of the medical profession.

(Explanation of rules will be continued next month)

Hamilton Dental Society

The officers of the Hamilton Dental Society are as follows: Past president, Dr. W. G. Thompson; president, Dr. R. N. Berry, M.L.A.; secretary, Dr. H. L. Field; treasurer, Dr. Arthur Poag.

The following sub-committees were appointed by the executive:

Program—Dr. J. N. Stewart, chairman; Dr. A. V. Lester, Dr. J. H. Scott and Dr. G. W. Everett.

Entertainment—Dr. J. E. Johnston, chairman; Dr. F. P. Moore, Dr. H. A. Robertson, Dr. F. L. Williamson and Dr. W. G. Thompson.

Archivists—Dr. W. J. McEwan and Dr. W. H. McLaughlin.

Publicity—Dr. W. G. Thompson, Dr. F. P. Moore and Dr. F. L. Williamson.

Auditors—Dr. W. Mitchell and Dr. W. D. Clark.

'19 D. S. C. Programme

October 3rd—"Drugs Used in Dentistry." S. M. Richardson. Host: H. G. BEAN

October 31st—"Exodontia" H. A. Hartford. Host: S. M. RICHARDSON.

November 28th—"Business Management." A. M. Hord. "Taking the Bite for Full Dentures." B. M. Ott. Host: A. M. HORD.

January 16th—"Periclasia." S. S. Crouch. Host: R. M. WATSON.

February 13th—"Diet." L. D. Drew-Brook. "Anaesthesia." R. M. Watson. Host: J. J. LAVINE.

March 12th—"Operative Procedures." W. L. Hugill. Host: L. D. DREW-BROOK.

April 9th—Clinic "Preventative Orthodontia." H. G. Bean. Host: H. G. BEAN.

April 30th—"Crown and Bridge." J. J. Lavine. Host: B. M. OTT.

Editorial

EDITOR:
A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.
ASSOCIATE EDITORS:
ONTARIO—Carl E. Klotz, L.D.S., St. Catharines.
QUEBEC—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D., L.D.S., McGill University, Montreal.
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Vol. XXXV TORONTO, NOVEMBER, 1923 No. 11

Patent Medicines, Proprietary Medicines

The American Medical Association, through its officers and publications during the past fifteen or twenty years, has done a great deal to protect the public against foolish and unwarranted self-drugging. Many anti-drug cults have assisted in hindering the excessive use of medicines. Along with self treatment, come many publications of books styled "Every man his own doctor," "Cure yourself," etc. The general practitioner of medicine has for centuries prescribed drugs for the treatment of every ailment, so it is little wonder that public faith in the efficacy of drugs should be unlimited. Many people believe that there is to be found in nature a drug to cure every disease.

The American Medical Association through its propaganda is only now undoing the one-sided teachings of the medical man for these hundreds of years. It was quite natural for a commercially-inclined student or physician to recognize the fact that hundreds of people might be treated with a certain remedy made in a large factory as well as in the back office of a physician. The so-called high-class physicians in hospitals and army officers have for years prescribed by numbers and not for disease, or in other words the same prescription would suit hundreds of patients. This being true, then the manufacturer has gone out to prescribe, leaving the patient to make the diagnosis. Proprietary remedies have had a wonderful vogue in America for the past twenty-five or more years. Millions of dollars have been spent annually in their manufacture. The patented name of one medicine alone has been sold for ten million dollars.

Sir William Osler was the first among the regular physicians to say that very few diseases are at all influenced by the administration of drugs. In recent years, new methods of treatment and new drugs, if they might be called such, are being discovered which prevent or cure disease. As a matter of fact, there are not a dozen diseases which can be actually prevented or cured by any known drug.

In this issue we are publishing the rules of the Council of Pharmacy and Chemistry on proprietary medicines. In the light of the attitude of dental manufacturers and the dental profession towards such matters, these rules make interesting reading. What is still more interesting is a study of the reports of the Council on many of the supposedly ethical remedies prescribed by physicians and dentists. This is what the report says of campho-phonique powder: "Over 90 per cent. of it is inert absorbent talcum-like material. There is enough camphor and phenol to give the powder an odor. It is a patent medicine." A patent medicine is advertised and sold to the public while a proprietary medicine is advertised to the physician. In many cases a medicine is advertised to the physician long enough to get a good line of testimonials and then it is advertised to the public.

There is apparently no move in the dental profession to meet the situation of the proprietary or patent medicine question. Every month sees a new remedy or treatment advertised to cure periodontal disease or focal infection. Next to the preacher and the physician, the dentist is the most easily exploited by commercial fakers. And unfortunately he falls for the high-up faker in his own calling quite as readily as for those outside. He is proud to be one of ten or a hundred to report favorably on a new medicine or treatment.

Published Formula Incorrect

Again and again dentists have said that druggists have not been able to make up campho-phonique like what can be bought from the Campho-Phonique Company of St. Louis. Through a committee appointed to investigate proprietary remedies, it was discovered that the formula published by the company and that contained in all the books on pharmacy was not the one used by the manufacturers. It is claimed to contain 51% of camphor and 49% of phenol, while as a matter of fact it should be 20% phenol, 40% camphor and 40% petroleum oil. The addition of the oil makes all the difference in the world in the effect when applied to an abraded skin or mucous membrane. It seems that campho-phonique can not be purchased in the regular Canadian drug store.

The Radiographer

The X-ray machine has played a very great part in disclosing oral foci of infection, so I will conclude with a word about the radiographer. Frequently he is accused of being obsessed with the idea of focal infection and of ruthlessly condemning functional teeth. The X-ray machine and the oral focal infection theory have been exploited by the charlatan. What new invention or idea has not? Let me, however, give you this thought. The X-ray machine has been used for dental purposes only for a few years. The faulty dentistry and unsuspected pathological conditions have been accumulating for thirty years past. Perhaps then it is not so surprising that many teeth have been condemned.

—*R. S. Pennycuik.*

Editorial Notes

Synthetic anæsthetic drugs appear to be less toxic on higher animals than cocaine or holocaine. Cocaine is more variable in action than novocaine or butyn. Pituitary solution is recommended as an efficient antidote for cocaine, novocaine or butyn poisoning.

Dentists often see the beginnings of cancer on the face and about the mouth before the physician. They should tell such people that radium has brought relief to hundreds.

Oil of turpentine is an efficient remedy to stop excessive hæmorrhage from a root socket. The gauze containing the turpentine should not be packed tightly into the socket but carried clearly to the bottom.

The author of Gray's Anatomy completed this wonderful work before he was thirty-five years of age and unfortunately died of smallpox at the early age of thirty-eight.

Baillire, Tindall and Cox, London, Eng., have recently published a list of works on dentistry and dental periodicals. There is no recognition of students' dental publications. However, the list is a valuable one for reference.

At the ninth annual convention of the Women's Institute of Eastern Ontario, a strong resolution was passed for the provision of proper dental serivce for rural districts at moderate cost and a request that the government assist in such an undertaking.

Miss Martha Law has been appointed to the dental staff of the public schools of Toronto on full time service. The policy of full time service will be gradually carried out.

The annual outing was held recently at Simcoe, Ontario, under the auspices of the dentists of No. 5 District. The day was spent in golf, bowling and sight-seeing. Dr. W. M. McGuire won the golf trophy, with Dr. Tovell second, and W. Burnett the bowling trophy. Those present at the tourney were: Drs. Carl. T. Moyle, T. J. Wentworth, G. A. Wilcox, J. E. Amos, E. Hart, and D. Russell, of Brantford; C. McKenna, H. A. J. Thompson and J. W. Brent, of Toronto; C. A. Thompson, R. L. Revell, V. Leroy Heath, L. A. Staples, A. W. Wilson, Norman Douglas and J. J. Brown, of Woodstock; J. S. Spellman, R. O. Wynn, W. B. Shantz, and H. G. MacDonell, of Kitchener; T. T. Campbell, L. M. Winter and W. O. Bennetto, of Guelph; M. H. Hagey and V. H. Renwick, of Preston; A. R. Poag and J. H. Moore, of Hamilton; Wm. M. McGuire, Geo. E. McGuire, A. T. Sihler, G. E. Crysler, Lee F. Culver and Clarence Brady, of Simcoe.

The British Columbia Legislature sent Dr. Moore of Vancouver into Sayward Valley to care for the teeth of the children, and while the doctor was there he attended many of the adults of the valley.

Dr. A. B. Lehr of St. John's, Newfoundland, died at Southcott Hospital on July 16th. Dr. Lehr had practised on the island for over forty years.

Officers of the New Brunswick Dental Society are: President, Dr. W. L. Gillespie, Vice President, Dr. Vaughan; Secretary, F. A. Godsoe, St. John.

Mr. William Polson, a mechanical dentist, Toronto, died suddenly in his motor car, November 1st.

The place of dental surgery in regard to general health was discussed recently at a meeting of 300 physicians and dentists of London District, who met under the auspices of the Western Ontario Academy of Medicine. The chief speakers were: Dr. F. G. Banting of insulin fame; Dr. Weston A. Price, Head of the United States National Bureau of Dental Research, and Dr. C. S. Wright of Toronto.

Dr. C. K. Bird, St. Paul, addressed the Academy of Dentistry, Hamilton, on "The reasons for and the technique for balanced occlusion in fixed restorations."

The next annual meeting of the American Dental Association will be held in Dallas, Texas, November 10th to 14th, 1924.

"The next Annual meeting of the Kentucky State Dental Association will be held in Louisville, Kentucky, April 7-8-9-10, 1924. Headquarters at Seelbach Hotel. A program of unusual interest is being arranged."

Signed, N. B. Smith, President; Wm. M. Randall, Secretary, 1035 So. Second St., Louisville, Ky.; Geo. H. Means, Editor of Program and Master of Exhibits, 1380 Bardstown Road, Louisville, Ky.; R. L. Sprau, Chairman of Executive Committee, 968 Baxter Ave., Louisville, Ky.

There are 260 less students in Royal College of Dental this year than last. The chief difference is in the final year.

Drs. Kennedy and Mason whose offices have been on the corner of College and Yonge Streets for over twenty years, have moved to the new Physicians' and Surgeons' Building, 86 Bloor St. West, Toronto.

Cavity preparation is at the foundation of filling teeth. Poor cavity formation means poor fillings. The time spent in cavity formation is short or long very largely because the operation follows a recognized plan or not.

Obituary

The death of Dr. S. J. Burns, dentist of Regina, occurred last month in Rochester. Death followed an operation for stomach trouble from which Dr. Burns had been suffering for a number of years. He was a man in the early forties.

The deceased is survived by a widow and a brother in Winnipeg. The remains were shipped to Regina for interment.

Dr. Burns went to Regina from Cape Breton nine or ten years ago. He was a native of Newfoundland. He was student for a year or two with Dr. W. D. Cowan and opened an office in Regina some five or six years·ago. He studied dentistry at Philadelphia and subsequently graduated from the University of Saskatchewan.

Dr. Burns had been unwell for a number of years and was operated on several times. He went to Rochester for another operation and in response to a wire stating that he was dangerously ill, Mrs. Burns left for Rochester, but while on the train she received a telegram notifying her of his death.

HALF-PARTNERSHIP in an old established London (West End) Dental practice offered to a really first class operator with capital. Receipts £3,500 per annum. Canadian with registrable degrees preferred. Apply 2107, The Dental Mfg., Co., Ltd., 17 Newman St., London, W.1, England.

FOR SALE—Complete Dental Equipment in old established office. Price $500.00. Office rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

FOR SALE—In London, contents of one of the best equipped dental offices. Best location, old established. Address A.B.C. C/o Ash-Temple Co., London, Ontario.

TO RENT—Office to rent for dentist. Attractive location. Three medical doctors in same building. 345 Church St., Toronto, (Corner Gerrard St.). Apply Janitor.

Dominion
Dental Journal

Vol. XXXV. TORONTO, DECEMBER, 1923 No. 12

Suggestion for the Improvement of Full Denture Prosthesis

Walter F. Chappelle, D.D.S., Buffalo, N.Y.

(Read before the Academy of Dentistry, Toronto, October, 1923).

Success in full denture prosthesis depends upon a conception of the term "denture service" in its broadest sense. Individual skill mental and physical are the real factors. Technics and articulators are secondary. For real success you can neglect none of the following: (1) An estimate of the patients character and mental attitude, and the ability to change the latter if necessary. (2) A study of the physical conditions to be utilized or overcome. (3) An estimate of the cost of completing the dentures and service, based upon time and materials required. (4) The proper sales talk to impress the patient with the value of your services, without overselling them. (5) Careful planning and execution of the dentures. (You should have a mental picture of the esthetics desired and the type of dentures required before you start the work and in addition should have a catalogue of all your former troubles and successes filed away mentally for use as it may apply to the case in hand. A little training will make you quickly grasp the temperament, character, mental attitude, muscle development, and action, ridge conditions and relationship, and mandibular movements of your patients). (6) A careful checkup of the articulation, stability, and peripheral seal at time of placing in the mouth, especially for the patients living a distance from our offices. (7) Brief, but comprehensive instructions. (8) Another appointment soon enough so that you can give relief before discomfort becomes annoying or bad habits are learned. (9) Other appointments as needed to keep proper check on the patient and dentures so as to keep her co-operation and confidence. (10) A definite method of locating errors and the correction of minor errors easily. (11) A definite business policy and method of payment of fees. All the above are essential to success. In proportion as you neglect any of the above you are courting failure.

How many of us do all this? Is it any wonder we do not get results? Some of us seek to make psychology a cloak for poor work, others to make articulators accomplish everything, others fail in giving the service and co-operation after the completion of the work and some try to make impressions and central occlusion accomplish wonders.

Does this make it clear to you, why I say articulation technic and articulators are secondary to individual skill, mental and physical. Mental skill is by far the greatest factor. Does it not seem inconsistent to buy an articulator and study technics as the first step to success and I do not regret all the courses I have taken, and the time I have spent in study. I wish I could have time for very many more, but most of us have not the time and money or the perseverance to do it and hence I am convinced the general practitioner should start with the different phases and articulators in their proper place. The instrument you are using may be ideal for you, if you know how to get the best out of it.

To present the foregoing in a different light, dentures are made with reasonable success on all articulators, while less skilled operators fail with the same instruments. It is individual skill that makes success possible. Careful attention to every detail of complete denture service plus intelligent careful choice of and use of an articulator gives ideal results. A degree of success does not mean that the ultimate has been reached. An intrument suitable for one operator may be unsuited for another. Just as a cheap universal camera is best suited for an unskilled photographer while a complex expensive camera will accompish wonderful results for an expert, so the dentist must choose an articulator wisely. Don't buy an expensive articulator unless you will learn to use it properly. I have seen adaptable articulators used without a facebow, and with carelessly obtained bites and later followed with badly worn flasks and careless vulcanization and damaging polishing.

As a suggestion for the man who has the time and interest, a comparative study of articulators and technics will be very instructive and interesting. For instance the placing of a V-shaped tilted adjustable incisor guide on an adjustable articulator will give steeper cusps than usually obtained with a Hall articulator and the cusps will coordinate with the condyle paths if you desire coordinated cusps. In other words cusps can be made as steep as desired and still coordinate with given condyle paths. Steep cusps do not have to be entirely arbitrary or have to be made on an arbitrary articulator, but deep cusps do require readjustment of mandibular movements to the narrower limits laterally of the steep cusps, and this is sometimes desirable. For instance patients having a wide triturating mandibular motion with severe biting stress and poor ridges, which would result in instability laterally can be more readily forced to discontinue and assume more of a chop bite by a radical change to extremely high cusps. If they will accommodate themselves to the high cusps, success results; if they will not or cannot do so the high cusps are a failure. Personally I cannot see any reason for an entirely arbitrary high cusp except as an expedient. The use of grinding material in the mouth at times by the advocates of arbitrary high cusps even to a limited extent is proof to my mind that coordination of all high cusps would accomplish better results.

The practice of full denture prosthesis is one of the most difficult branches of dentistry to follow. Varying ability of the dentist, varying adaptability of the patient mentally and physically and improper education of the public as to what to expect and the value of denture service, are responsible. It is one of the purposes of this paper to suggest remedies for this condition which each may develop to suit his own practice. There is no doubt but what we are responsible and it is up to us to change things. No business man with a product as essential as ours would let the buyers dictate the terms under which they would buy the product. In most other lines of human endeavor where definite standardization is impossible we pay for the best efforts of the operator, regardless of the degree of success obtained. Physicians, lawyers, and even the man who repairs your auto are paid without any guarantee that their services are up to the peculiar degree of success the buyer of their services may correctly or erroneously expect. The principle that success is often a relative term depending upon the skill of the operator and the adaptability of the patient does not enter in to the bargain. We have failed in that we have been content to sell dentures instead of our services and skill.

We do not try to educate our patients. If grandma or Mrs. Jones is held up by a patient as a shining example of what has been accomplished by someone else especially after ten years' use you are pretty safe in getting that patient in and putting her to the test with cotton rolls or pine sticks. You will usually find them chewing in one spot only or on two sides at once or biting very lightly as shown by relative dents in pine sticks or playing some other of the many tricks possible. Very often you will find no stability at all. If results are ideal you will usually find conditions ideal.

Since a denture is not a finished product when first placed in the mouth and each case is a separate problem requiring individual treatment and each subject to the adaptability of the patient, a system of prognosis and analysis using Dr. Gillis's chart is very valuable as a practical means to locating the cause of unfavorable results. For the location of errors and their correction immediately and in a simple way if not too severe I suggest a correction technic which has been a great help to me. I feel that this correction chart and technic not only saves time and annoyance but that its use makes Dr. Gillis's chart more reliable and that they are the most valuable means at your disposal of checking up on your work and turning your troubles into assets. Most of us are like the tailor who can cut new suits but when some suits fail to fit he cannot tell the reason why. Our failures make us lose confidence when if we could locate their causes and correct them readily they would make us gain in confidence. We all have our faults and if after six months of effort we can look back over our charts and see that we have overcome certain errors and improved our technic by the adoption of changes in procedure then we can feel we are on the right road, but if we cannot see that improvement we must analyze the progne-analysis chart and see where the trouble lies. If in the first column we either do not judge our patients mental condition or we do not use the psychology to improve it, or we may improve it too much and not be able to live up to the picture we paint. If in the second column we do not understand diagnosis of physical conditions and how to utilize or overcome what we find, and columns one and two under function will suffer. If in the first column under structure we need to make a study of facial harmony and tooth form, shade, etc. And so passing on over the other columns you will be surprised to see how often fees and failure to get cash is the cause of the trouble. Failure to get cash when dentures are placed in the mouth and better still one half when dentures are started shows lack of confidence and if you do not have confidence you are starting under a big handicap. Since so much in denture service depends upon conditions in the patient's mouth and the cooperation of the patient it is essential that active cooperation is obtained from the patient, which is only possible in many instances when a payment has been obtained. Illness or business may prevent other patients from giving you the time to make the necessary minor adjustments and so hold up payment. Many patients who have no investment will not take the same interest.

There will always be men who will take advantage of the fact that they have the money and will not deliver the goods, just as some men will make psychology a cloak for poor work. Such men we have always had with us but that need not prevent us from using psychology honestly as a valuable aid to explain the superiority of our services and in helping the patient to give that valuable cooperation so desirable, and so with getting cash it will work to the advantage of both the dentist and patient. The conscientious operator will always enjoy doing more for the patient who pays promptly and shows her confidence, than he will for the patient who withholds payment to try to force the dentist to measure up to some standard she has decided upon. As for the patient if she has to give up her money beforehand she will be more sure to inquire if the prosthodontist has the ability to deliver the type of work she wants. Too many patients knowing their expectations are high still choose the cheaper priced dentures because if they pay nothing beforehand they have nothing to lose and everything to gain. We can all spend our time to better advantage than to work under such a disadvantage.

What I have suggested to you may seen too lengthy and detailed to appeal to the general practitioner. The keeping of charts and the many subdivisions of the complete denture service offered for your consideration may seem like a hopeless task, but I assure you it is the only logical way to go about improvement. This plan or some similar one which it may suggest to you will help you to be systematic, consistent and practical in your efforts, to be well balanced, to give to each phase of complete denture service its true value. Some of you may not need to keep charts, but can chart results mentally. Others may not have the time to keep charts, but study this chart of Dr. Gillis's whether you use it or not. It will help you to get the idea of dividing up the various divisions of denture service for study. It would pay all of us to keep a limited number of charts for difficult cases.

Another suggestion for bettering your work is to keep one or more almost hopeless cases in hand to send for during slack times for study and improvement. An intelligent persistent faultfinder is a wonderful help in the study of better methods.

Another suggestion is to send for patients after a lapse of weeks or months and check up for stability, esthetics, and efficiency. You will often be decidedly disappointed at what you thought was quite satisfactory at the time of making.

This is a different attitude from the stand I have taken before, as I have been radically enthusiastic over each technic and articulator I have studied. I have found great improvement from each course I have taken. They all had merit and I wish I could have time for very many more. The study of different methods makes one more tolerant and broadminded and it is possible to choose and use an articulator more intelligently, but if one starts with a study of articulation and the purchase of an articulator and stops there he will place undue stress upon that phase of denture service and expect too much of it. They will not cure all your troubles, nor will they do your thinking for you. You are apt to be too enthusiastic at first and too reactionary later to make any further effort. Be consistent and use good judgment and you will have a steady improvement that will be lasting and make you want to improve indefinitely.

If however after some effort you find that you are not able or do not care to practice full denture service, do not try, or if you are only partially successful learn to know your limitations and refer such work to someone who can handle it better. Don't refer such patients after you have wasted your time and theirs in useless effort but do so as soon as you diagnose the case as undesirable. You save your reputation and any valuable hours you could spend to better advantage developing some other branch of your practice or in needed recreation. There is no disgrace in referring patients. You can explain to them that their case is abnormal and make them feel you are doing them a favor. Consistent practice of denture service, better business methods, and intelligently improved technic, together with education of the public, will be a boon to both patient and dentist.

This correction technic consists of a chart and the use of black wax or red compound sticks, carbon paper and carborundum stones, and an alcohol mouth blow lamp. The probable cause of trouble is located by questioning the patient using the chart as a guide. For instance for instability, asking the patient if instability occurs when not using the dentures for masticating, or when using the anteriors only, etc., will locate the group in which the cause of trouble may be looked for. The items in each group are arranged in the order in which they are most likely to cause trouble. If the trouble is due to some serious structural defect such as improper arch form or bite plane or other serious fault, it will be necessary to do some of the work over again but if the cause is suspected to be pressure on the hard palate the remedy is to spread a thin layer of black carding wax over the suspected area, place in moderately warm water and return to the mouth and test. If the wax is displaced it shows too close contact at that point. Red compound can also be used if preferred but it takes more heat. Black wax shows trouble very readily if heated in warm water until just short of melting and has the added advantage of being easily cleaned off by warming the denture and wiping off with a piece of cheese cloth. The underside of the denture is oiled or soaped and some quick setting plaster is run over the surface. This is removed and the surface is scraped under the point where the riding took place as shown by the black wax. The plaster is replaced and the area to be depressed is warmed with the blow lamp carefully and pressed down to the extent the plaster was scraped. Chill and try out denture again to see if correction is sufficient. Suspected excessive pressure anywhere in the denture may be similarly located and corrected, and discrepancies in contact as well. After closing leaks or relieving pressure wax may again be used to check up on the correction and surprising accuracy in adaptation may be obtained. Excess wax left on the surface means lack of contact and entire obliteration of wax showing pressure. An adjustment that will leave an extremely thin even film being ideal.

Uneven biting stress or cusp interference are each detected by the use of carbon paper. Uneven biting stress is shown by black areas where excessive stress occurs and it is essential that hard pink wax sheets be placed between the teeth of such areas, as a certain amount of instability of the denture may occur under a great discrepancy, the extent of which would not show up except through the wax reseating the dentures.

Poor cusp articulation will be disclosed by carbon markings that are uneven in blackness at different parts of the mark. The grinding is to be done in the same proportion, the deeper the mark the greater the grinding needed. Think before you grind and learn to read carbon markings accurately. Much damage can be done by improper grinding.

It is surprising what can be done by such simple methods. For purposes of testing temporarily it is even possible to move the teeth and rubber with them to relieve striking the anteriors without loosening the teeth or opening the rubber. This method of relieving the hard palate and closing leaks is a great help in carrying patients with temporary dentures along to save rebasing too often. The mastery of the possibilities of this correction technic will overcome the lack of confidence apt to result from failures, the cause of which we are not certain and it is also a wonderful time saver.

INSTABILITY

1. When not in occlusion:
   (1) Over extension of borders;
   (2) Leaks;
   (3) Pressure;
      a. On hard palate;
      b. On posterior spines.
      c. On circulation;
   (4) Anterior teeth and gums too full;
   (5) Failure to fill space between tuberosity and cheek.
2. When using anteriors:
   (1) Hard foods:
      b. Uppers and lowers.
      a. Uppers riding on hard palate.
         (a) Leaks at posterior border.
         (b) Poor balanced bite.
         (c) Lack of contact with anterior ridge.
         (d) Soft ridges.
         (e) Excessive building forward of the anterior teeth giving too great leverage.
   (2) Soft or tacky foods—poor peripherial seal at the anterior border. Leak at the frenum.
3. When using posteriors:
   (1) Hard foods:
      a. Uppers riding on the hard palate.
      b. Uppers and lowers.
         (b) Poor cust co-ordination.
         (a) Poor balanced bite.

(c) Lack of contact with ridge on the same side.
(d) Soft ridge.
(e) Poor peripherial seal on opposite side.
(f) Teeth too far outside of ridge.
(2) Soft foods:
a. Leak on the same side.

Discomfort

1. Soreness:
(1) In the throat or neck—due to overexertion or cramped tongue.
(2) Of the ridge tissues.
a. At the border of the denture.
(a) Muscle impingement.
(b) Instability may cause rubbing usually opposite excessive biting stress but more often inside the denture over a prominence.
(c) Sharp edge on denture.
(d) Excessive pressure.
b. Inside of the denture.
(a) Pressure from imperfections or sharp process.
(b) Instability causing rubbing on tuberosity or prominent process.
(c) If denture and ridges are smooth, look for too great bite pressure if soreness is on top of the ridge and, if on one side of ridge, look for two steep cusps or overbite, causing lateral pressure, also riding on the hard palate may be a cause.

In the case of partials, poor adjustment of the clasps cause soreness due to displacing saddles.

2. Nerve irritation:
(1) Upper:
a. Pressure on palatine foramen & plexis. Both may cause reflex irritation in the nose.
b. Pressure on papilla or large rugae.
c. Pressure on posterior buccal region. May cause reflex ringing in the ears or pain in the temple.
d. Too deep relief over hard palate.
(a) Lower:—Pressure over mental foramen.
3. Gaging:
(1) Often due to overextension posteriorly. Check up by placing finger tip or an instrument over suspected area and produce gaging before trimming.

Tissue directly posterior to the centre of the hard palate is less sensitive than tissue on either side. It is curve the posterior border of the denture when necessary to go beyond the hard palate and escape sensitive tissue.

(2) More often it is due to poor contact, causing a tickling sensation at posterior border, rubber too thick or posterior teeth too long and touching the side of the tongue where it is often sensitive, or to cramping the tongue which is held too far back in the throat and stimulates gaging in swallowing.

INTERFERENCE

1. Swallowing:
    (1) Upper overextension posteriorly causes congestion of the soft palate.
    (2) Lower neck and tongue muscles lame from lingual flange extension.
    (3) Cramped tongue space.
2. Speech:
    (1) Cramped arch design.
    (2) Thickness or clumsiness.
    (3) 1st bicuspids too full lingually.
    (4) Spaces between teeth or arches too hard to close off with the tongue.
    (5) Loss of natural posteriors some time previous to the anteriors.
    (6) Excessive opening of the bite.
    (7) Excessively short bite.
    bite.
3. Laughing:
    (1) Overextension interfering with muscle action.
    (2) Poor suction.
4. Yawning:
    (1) Riding on the muscles especially in the buccal region.
    (2) Too long posteriorly.
5. Tongue:
    (1) Too long flanges on the lower lingually.
    (2) Bulky.
    (3) Poor arch form as to length or width.
    (4) Excessive opening of bite.
    (5) Improper positioning of bite plane.
    (6) Loss of natural posteriors some time previous to anteriors.

6. Biting Cheek:
    - (1) Posteriors edge to edge bucally or nearly so.
    - (2) Posteriors carried too far back.
    - (3) Cheeks flabby or too fat.
    - (4) Too short bite.
    - (5) Accidental biting of cheek, and swelling, the swollen tissue being in the way.
7. Biting tongue.
    - (1) No posteriors for some time previous to losing the anteriors.
    - (2) Sharp cusp edges.
    - (3) Instability.
    - (4) Improper positioning of the bite plane.
    - (5) Too long or short a bite.

Cast Gold and Aluminum Bases. Using the Moore Plate-Flask

By Guy T. Kantner, D.D.S., Toledo, Ohio

This is written in the hope that those interested may find, in the methods described, some hints and suggestions tending to shorten the casting operation, and add to the definiteness and certainty of results.

No originality in the methods recommended is claimed; and I wish to avail myself of this opportunity to express my gratitude to the many able workers and writers who have contributed to the making of better dentures than was possible under older methods.

In describing the different steps in detail, which is essential in a paper of this character in order that the reader may duplicate the process, one must necessarily mention many things that are well known to many and often emphasized in writing; therefore, the reader will kindly bear with the writer in recalling such points as may be entirely familiar to him.

The impression, if any part of it is of plaster, should be painted with a coat of thin shellac, followed, when dry, with a coat of sandarac varnish. When the varnish becomes dry, immerse the impression in water in order to fill the pores, which will prevent the absorption of water from the material used for the model or cast. It is well to blow off any surplus water that may remain on the impression before endeavoring to pour the cast, since any free water on the impression will thin out the material forming the cast, and cause a weak or soft spot.

A modelling-compound impression may be used without varnish, and it is unnecessary to place such an impression in water.

The model (or cast) should be made from some one of the artificial stones. Those that are finely ground will yield a cast with a dense and smooth surface, and one that is not easily affected by water, handling, or the adapting of the wax. Surround the impression with boxing-wax to a height of at least one inch above the edge, to obtain sufficient thickness for swagging.

The mix of the stone is quite important, for the strength of the cast is greatly affected by the amount of water incorporated with the powder. In models for this work the maximum strength is required, since it is necessary to swage the cast plate to counteract the shrinkage of the metal during the process of casting.

The first part of the mix is carried forward about as in mixing plaster, spatulating the mass thoroughly until the water and powder are completely incorporated. Continue adding powder and spatulating until the mass becomes too dry to be handled with the spatula, when it should be taken from the bowl and kneaded in the hands. More powder may then be added by placing the mass in the powder and again kneading, repeating until the correct consistency is attained. This is a very smooth, stiff mix, not pliable, and will break apart readily; yet when placed in the impression and jarred down by tapping on the bottom of an inverted plaster bowl it becomes very mobile, and settles to place without difficulty. (*See foot note*). The jarring should not be continued long, since the surface next the impression soon becomes smooth, and the bubbles that rise into the mass of the cast are so few that the strength of the material is not greatly decreased by their presence.

The resultant cast may be removed from the impression at the end of about two hours, and any necesssary carving should be done at that time. The cast should then be allowed to stand exposed to the air for one hour, when it should be placed in warm water, about 98° F. The laboratory washbowl is very convenient for this purpose, for, by allowing a small stream of water to flow over the cast, the temperature is held constant. The placing of the cast in warm water allows it to take up sufficient moisture to prevent the wax sticking to it. It also raises the temperature of the cast, which facilitates the adaptation of the wax. Water at the temperature recommended, when imparted to the cast, does not soften the wax, except in the cooler weather; but it does improve its workability. I have been using the R. & R. special base-plate wax, but there may be others that will work at about the same temperature.

Crumple up several sheets of tissue-paper and form them into a roll about one inch in diameter and two inches long. Two of these rolls should be made and placed in water. Now, the wax, 30-gauge, is dipped in the warm water and placed on the cast, we will say, for an upper denture, and very lightly carried down into the vault at the posterior extremity of the cast. This results in but one bend of the wax, the posterior part lightly touching the posterior vault from heel to heel, the anterior part of the bend touching at the lingual curve of the ridge from the heels to the anterior median line.

Place one of these tissue rolls in this bend of the wax and while holding the wax in place with one thumb press down on the paper into the posterior quarter-inch of the vault with the other. Retain this with the thumb to hold in place and with the other thumb and finger press the paper roll together away from the sides of the vault and force it into the vault; then flatten out with the thumb.

The tissue holds the warm water, which aids the flowing of the wax. The water also softens the paper, and makes it an ideal swaging material for the wax. The use of tissue paper in this manner will adapt the wax to the vault, and over the remainder without undue thinning or tearing. Hold this roll in the vault with the thumb while continuing the adaptation. This will insure that there shall be no movement or ''creeping'' in this section.

The wax is now cut in the part that extends beyond the ridge, at the median line, forward to the edge. This allows the two sides to be adapted separately. If there is a depression on the ridge between the cuspid and tuberosity, it is best to grasp the wax gently between the thumb and finger, and lay it down over the ridge by rolling the thumb. This prevents a fold. The tissue is again used, and the adaptation completed on the one side.

The wax projecting beyond the median line and frenum should be cut away, and the wet paper rubbed gently over the cut edges. The edge is thereby burnished to a knife edge, which will join with the other side as it is brought to place without a noticeable joint. This burnishing effect of the tissue-paper roll is well worthy of attention since, by its use in adapting, the wax is drawn thin. The paper is best handled by pressing at right angles to the wax, or in a rolling manner. When the wax has been completely adapted it can be polished very nicely by taking advantage of the burnishing effect of the tissue-paper, as mentioned. This is done by lightly stroking or rubbing the wax with the roll of damp tissue paper.

The wax pattern now becomes a matter of individuality, necessity, and the requirements of each particular case; therefore I shall not attempt to say how it should be completed. The undercuts for the vulcanite may be made deep or shallow and vulcanite attachments made to suit the ideas of the operator. I generally use about a one-sixteenth inch strip of twenty-gauge wax for the lingual undercut, pressing it lightly onto the pattern, and then sealing it with the hot spatula. By allowing this to cool and then going over it with a spatula warmed just enough to burnish, the joint is improved, and the undercut shaped as may be desired. (*Fig* 1).

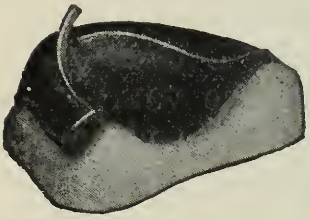


Fig. 1

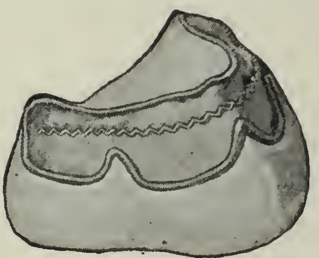


Fig. 2

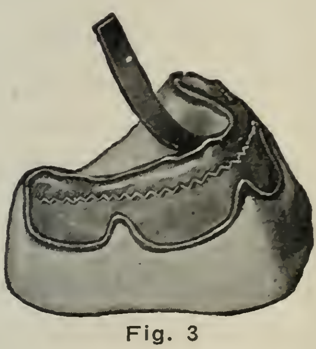


Fig. 3

There are many ways of making attachment pieces for the Vulcanite. I find a piece of wax in zig-zag form, called a "Vulcanite Attachment," very good for this purpose. It may be applied on the points, making loops, or laid down and then burnished down into over-hanging edges, forming undercuts, as the cast may require. (*Fig*. 2). All of this work is facilitated by using one of the low-power electric-light bulbs. The heat from such a source, thrown onto the pattern, keeps the wax in a workable condition. After all attachments are placed, the excess wax is trimmed away.

The pattern is now ready for attaching the sprue and investing. It is well to remove the pattern from the cast at this time, in an experimental way, since it gives us the assurance of its coming away later when we wish it. This is best accomplished by placing cast with wax pattern up in the bowl; stop the flow of warm water and allow to remain for few minutes. Its removal may be facilitated by using a water syringe and playing a stream against the edge of the pattern.

If there are undercuts, bend the wax out of them before attempting to remove the pattern. When the wax pattern comes away from the cast, replace it and gently readapt to the cast, except in the undercuts. Now attach the sprue at the anterior junction of the lingual waxed undercut. The sprue is a strip of twenty-gauge base-plate wax, about five-sixteenths inches wide. This supplies a sprue that will pass readily through the clay crucible when investing, and carries enough volume without the danger of the sagging of the metal. The sprue should be attached at an angle of forty-five degrees to the general level of the ridge, and pass backward over the vault. At a point three-quarter inches back from the place of attachment to the pattern, bend the sprue upward, perpendicular to the ridge, and the pattern is ready to invest. (*Fig.* 3).

The production of a smooth surface on the casting is very desirable, and I find that this may be accomplished by the use of a painting investment compound put up by the Ransom & Randolph Co. This material is prepared for use by shaking the powder into water, allowing the water to take up the powder without stirring or spatulating. The proper consistency for the thin part of the mix is obtained by allowing a small portion of the water to remain unabsorbed at the edges of the mix. The mix may be prepared very handily on a watch-glass. For inlays a cement slab may be used, since only three to five drops of water are required.

The painting of wax patterns with a water-mixed investment has been a rather difficult thing to accomplish, because of the incompatibility of the water and wax. This, however, is obviated very pleasingly by the use of alcohol sprayed upon the wax pattern with an atomizer before attempting to paint. The alcohol wets the pattern, has an affinity for the water in the mixed investment, and carries the investment with it. The thinner part of the mix is applied with a brush, and then blown down with a chip-blower. There need be no care taken in its application except to see that the pattern is entirely covered. This results in a film coating covering the pattern, which is immediately covered by the thicker portion of the remainder of the mix, completely concealing the wax. (*Fig.* 4).

Each of the steps given is a preparation for the succeeding step; therefore, do not allow the alcohol to dry. Simply shake off the excess before applying the thin part of the mix. The film should be almost immediately followed by the thicker portion. This covering of painting investment is allowed to dry for about one minute, until it becomes a dull white, when it is covered by about an eighth-inch layer of Standard investment, to give sufficient strength for handling. A little of the Standard may be mixed the same as the painting investment, to a thick, creamy consistency. This will not flow readily, but is pliable, and may be pushed about with a brush. The Standard investment will harden in about eight minutes, when the pattern may be removed from the cast (or model), and the painting investment, followed by the coat of Standard, also applied to the palatal surface in the manner just described, carrying the coating of Standard over the edges of the pattern, connecting it with the layer of Standard first applied, as directed. (*Fig.* 5). When this has hardened, the wax pattern is surrounded by a double envelope of investment which protects it from distortion during the process of investing it in the flask. The painting investment is very fine, which gives a beautifully smooth surface to the plate cast against it, making only the minimum amount of polishing necessary.

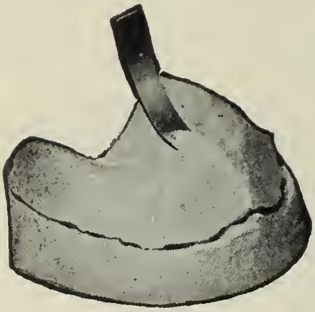


Fig. 4

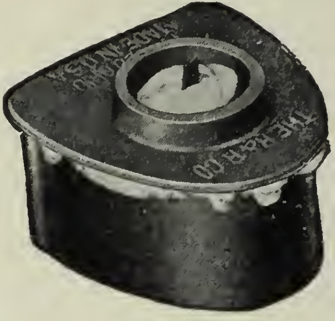


Fig. 5

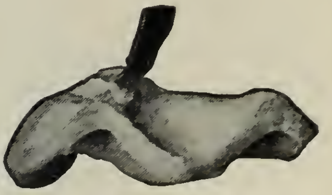


Fig. 6

When the envelope has become hard, immerse the whole in water, together with a clay crucible. This is done for the same reason that we wet an impression before pouring a cast.

Sufficient Standard investment compound to complete the investing of the case is now mixed to a stiff-cream consistency in a large plaster-bowl. The inner perforated flask is placed in the outer cast iron flask, and filled nearly full of the mixed investment. The invested pattern is now taken from the water, the palatal surface filled with the mixed investment, turned over and forced down into the filled flask until it is below the level of the top edge of the inner flask. The flask is then filled with the remaining mix to about an eighth inch above the top of the outer flask, and the cover placed in position, centering the sprue, and forced down. (*Fig.* 6).

The clay crucible is now passed over the projecting wax sprue, and rotated with the thumbs, as it is pressed down to position, the fingers pressing the flask-cover down, at the same time, until the grinding of the investment between the cover and flask can be heard. Hold in position for 3 to 5 seconds then trim away the surplus investment material. (*Fig.* 7).

When using the flask on a pressure casting appliance, force the clay crucible about an eighth inch below the ring of metal to obtain ample space below the plunger-cover.

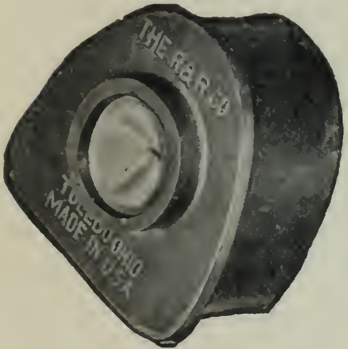


Fig. 7

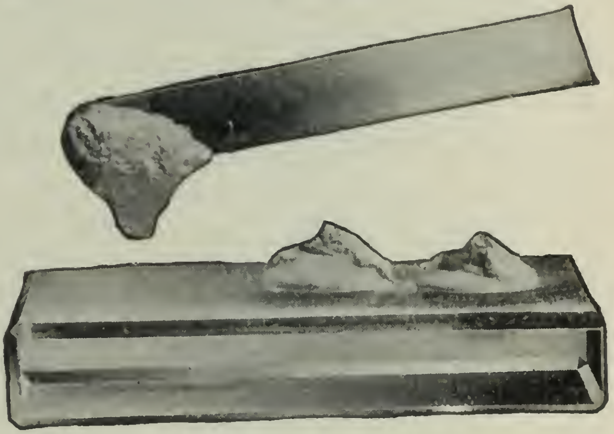


Fig. 8

It may be well to speak of the correct mix of Standard investment at this time. When *and* if properly mixed, Standard investment will not shrink. If shrinkage appears, it is solely and entirely because the mix has been made too thin. In the thin mix the particles of the investment are held apart by the excess water. When this is driven off by heat, the spaces it occupies close up, causing the shrinkage. If the mix is carried to the consistency of very stiff cream, as before mentioned, the correct amount of water will be incorporated, and, chemically speaking, Standard investment will be the result—not Standard investment *and* water; and the application of heat will have the effect intended—that of a slight expansion of the investment.

Be sure that the investment is mixed as directed, so that it will hang and drop from the spatula and form masses as shown in *Fig.* 8.

Standard investment reaches its maximum expansion in the chemical process of setting by the end of the first hour. It may therefore be allowed to stand any length of time thereafter without injury to the mold. Theoretically, by applying heat before the end of the first hour, we are adding heat to that already generated by the chemical process of setting, and thereby increasing the normal expansion of the investment.

The heating or drying-out of the flask should be conducted very slowly and considerately. During the first fifteen minutes the heat should not exceed 300° or 400° F. At the end of that time it may be gradually raised to about 700°, where it should remain until the flask and invested case are entirely dry, when it should be raised as rapidly as possible to about 1400°, and held there twenty to thirty minutes, or until a bright cherry red may be seen by looking down through the sprue opening. This is about the color of your neighbor's cigar when he is smoking gently. The dull cherry is too cold, and the white heat is too hot. In either case a failure is likely to follow an attempt to cast. If every step is carefully and correctly taken, failure will be almost impossible.

When the flask has attained this heat, clean the gold to be used on a charcoal block. Then take the flask from the furnace, rub the bottom ring on an asbestos board to clean it, and set it in place on the Elgin bed-plate. To be sure of an air-tight connection, rotate the flask back and forth on the bedplate until a vibration is felt. Rotate gently, not violently, for the flask is very dry, and the mold may be injured by rough handling. As soon as vibration is felt, turn the flask very slightly backward—in the opposite direction to that in which it was moving when vibration is felt—and release it. An air-tight seal between the flask and bed-plate may be depended upon. If vibration is not felt, remove the flask and rub the bottom of it gently on a piece of very fine emery-paper, and try again.

By this time the cleaned gold will have cooled to a cherry-red, when it may be picked up with pliers and placed upon the clay crucible in the top of the flask. Play the blow-pipe flame upon the nugget until it reaches the proper molten state, and make the cast. Keep the flame playing on the bottom until the casting has had time to solidify. By keeping the residue of gold in the crucible in the molten state until the casting has congealed to some extent, the draw caused by the shrinking of the metal is downward. If the flame is removed from the bottom as soon as the casting is made, the button will cool first, since it is in contact with much cooler atmosphere, and the draw will be upward, toward the button, and might even extend to the casting and pull away a part of it.

There are two good ways of handling the plate at this stage. The flask may be allowed to cool, when the plate may be removed. If trial on the model indicates swaging to be necessary, the plate is annealed, swaged, and then retempered by heating to a dull cherry and allowed to cool very slowly.

The other method is to open the flask at once, cut the sprue while the plate is still cherry red, plunge the plate into water, at once annealing it. The plate is then tested and swaged if necessary, and the plate retempered.

The flask may be opened by inverting it and tapping smartly on different sides of the outer flask. This breaks the seal of investment above the inner flask and the outer comes away. Draw the pin holding the joint of inner flask together, and force apart with a plaster knife. (*Fig.* 9). The investment may now be broken away from the casting. Expose the sprue by removing remaining investment and cut the casting free. Clean the investment away from the crucible, and tap it out of the cover. If the crucible is whole, it may be used again. If broken, save the pieces, as they may contain some gold, and send them to the refinery with other scrap. The button may be removed by tapping on the cut sprue.

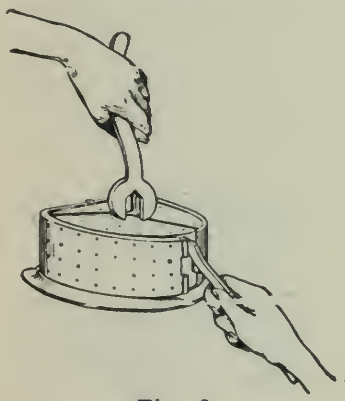
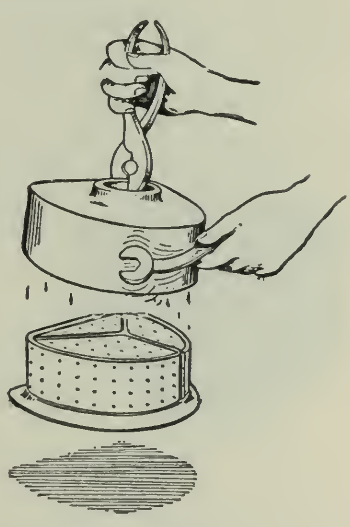


Fig. 9



All of the foregoing has had to do with casting in gold. The aluminum base-plate may also be cast in practically the same manner, with a few changes in technic, as follows:

In the preparation of the wax pattern, an eighteen or twenty gauge base-plate wax is advisable. The sprue should be double. or twice the thickness of that for gold, two strips of twenty-gauge wax being used.

The drying out of the flask and the heating up may be done on a Bunsen or a Fisher burner, using about an inch and a half flame for the first fifteen minutes. The flask is placed above the burner in such position as to allow the upper half of the flame to enter the bottom opening. At the end of fifteen minutes, the flame is raised to about three and a half inches, and allowed to remain at that until the flask is dry. Then give it a full flame, of seven or eight inches until the flask stops smoking when the flame is turned down to the height first used and allowed to remain at that point for another half hour, when the flask is ready for the next step.

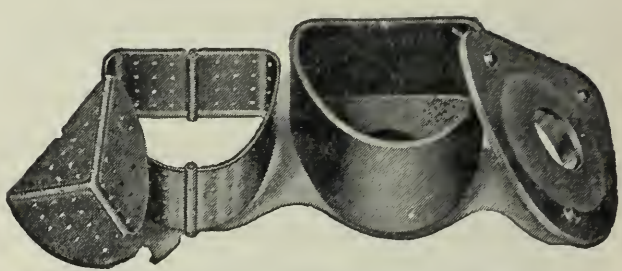
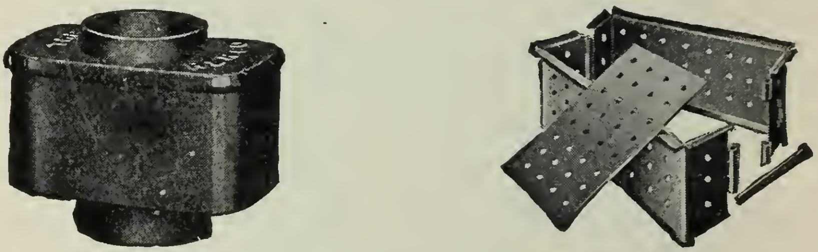


Fig. 10—The Moore Plate Flask

Place the dry flask on the bed-plate and test the seal as for gold-casting. Place one third to one-half ingot of aluminum in the crucible. A large brush-flame from the blowpipe is played upon the metal until it flattens out. Test it with some old instrument, such as a spoon excavator, by stirring it about. A feeling of resistance indicates that the metal is not yet fully molten. Continue playing the flame and testing until the resistance disappears, and then cast. The molten metal will not pass the color of bright aluminum in the daylight. By testing the condition of the molten aluminum in the manner suggested, metal will not become overheated, and the result will be a bright, clean base-plate, having the smooth characteristic feeling of aluminum.



Outer Flask Inner Flask

Fig. 11—The Moore Saddle Flask

It is well perhaps to describe to some extent the Moore Plate and Saddle Flasks and Inlay Rings. These flasks without a doubt are among the greatest improvements that have come to casting in the last few years. They are so constructed that there is a space surrounding the investment on all sides except the top. This is accomplished by using an inner perforated flask somewhat smaller than the outer flask, and with an outward-turned upper edge which prevents investment from passing downward into the space between the flasks. This space provides a lateral emptying of the air in the mold. It therefore gives us the ability to cast "up hill." If metal may be made to flow up hill, it therefore can be cast "down hill" with an increase efficiency. The space is a great aid in eliminating the moisture as the flask is raised so it does not rest on the base. It also acts as an equalizer of the heat and as an insulator against the cooling of the atmosphere when the flask is placed on the casting.

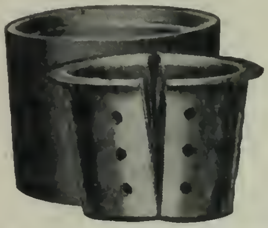
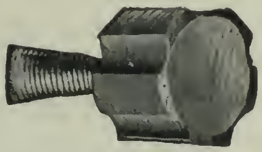


Fig. 12—The Moore Inlay Ring



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The inner flask is provided with hinges having loose pins which enable one to remove the flask from the investment without the necessity of plunging it in water or cutting it out with a knife. (*Figs.* 10, 11 *and* 12)

*NOTE—A very convenient and entirely satisfactory "jogger" may be made easily from the hub of a brush wheel and screwed into the mandrel of a lathe. When the impression has been filled, place it on a sheet of tin or anything of that nature, and hold the tin gently against the surface of the rotating "jogger."

The System of part time dental service in Toronto is gradually to be changed to full time service. The salary for beginners will be $2,200 a year.

In Britain all dental schools are subject to an inspection by the general medical council. Any which fall short find themselves in a critical position. Such an inspection is not for a classification but for efficiency.

Dental Societies

Manitoba Dental Association

The board of directors of the Manitoba Dental Association met last month in the Red Cross provincial headquarters, Kennedy street, for the last meeting prior to the election of officers in January. Dr. H. A. Croll of Souris, president of the association presided. The subject of educational instruction to the public along the lines of oral hygiene was discussed.

A report was read by Mrs. H. M. Speechly on the work of the Junior Red Cross in the districts which did not have resident dentists. There was a travelling practitioner whose expenses were paid by the society, who had his time fully occupied in the unorganized districts and who was giving instruction in oral hygiene to the school children of these areas.

In the district of Killarney, well settled and with a good type of people it had been found that between 80 and 90 per cent. of the school children had defective teeth. That proportion was general over the continent. Much of this was due to neglect and lack of attention.

The profession in Winnipeg had provided their services gratis at a free clinic in the Winnipeg General hospital for considerable time and when the demands on the various doctors' time had grown very heavy, a member of the profession was chosen by the other members to do this work alone and his expenses were borne jointly by the city and the profession. A free clinic to which each of about 45 practitioners in the city of Winnipeg donate half a day each month was being conducted in the Somerset block under the auspices of the Victorian Order of Nurses.

The annual election of officers will be held Monday, January 14, it was announced.

Ottawa Dental Society

The programme of the Ottawa Dental Society for 1923-24 is as follows:

October: Dr. F. A. French; November: Dr. A. E. Webster, Toronto, Subject—Selected; December: Dr. F. N. Burt, Montreal, Subject—Dental Biology; January: Dr. F. A. Clarkson, Toronto, Subject—Physical Diagnosis; February: Dr. Harry Thompson, Toronto, Subject—Oral Hygiene; March: Dr. J. N. Stewart, Hamilton, Subject—Porcelain Jacket Crown Technique; April: Dr. Chas. Juvet, Ottawa, Subject—Selected.

The above programme is tentative and may be changed if any of the clinicians and speakers are unable to attend.

In February the executive expects Dr. Thompson to address the Rotary, Kiwanis and Lions Club on Oral Hygiene. If he finds his programme too heavy we will have Mr. Henderson of the Ash-Temple Co. to address us on Dental Office Economics. In case of any changes you are assured of an interesting substitute speaker.

Chicago Dental Society

THE CHICAGO DENTAL SOCIETY ANNUAL CLINIC AND MEETING WILL BE HELD ON JANUARY 17TH, 18TH AND 19TH, 1924, AT THE DRAKE HOTEL, CHICAGO.

All ethical members of the dental profession are cordially invited to attend this dental classic. Two days will be devoted to thirty-six half-day lecture-demonstrations, and exhibits, two general sessions and the banquet. On the third day many interesting individual clinics, as well as a number of highly developed group-clinics will be presented. There will be a comprehensive display by the dental manufacturers and dealers.

You cannot afford to miss this great meeting. Make your plans now. A railroad rate of one and one-half fare for the round trip, on the certificate plan, will be available.
Charles R. Baker, Chairman, Program Committee, 627 Grove St., Evanston, Ills.

The Universities Association of Vancouver has under serious consideration standing sponsor for a dental infirmary to be established in the general Hosital. It is expected that members of the dental profession will man the clinic. It will serve the needy poor with dental services. A prosthetic department will be established in connection with the infirmary.

Inspector Benson of Windsor, Ontario, reported to the Board that dental equipment be installed in five of the nine schools and that equipment be purchased for Wyandotte School at once.

Dr. H. S. Thompson addressed the students of the Royal Military College, Kingston, Ontario, on how to care for one's teeth.

Book Reviews

CLASSIFIED INDEX OF PERIODICAL DENTAL LITERATURE COVERING THE PERIOD FROM 1839 TO 1875.

This is the most important volume of the series of Indexes as it covers the development of the dental profession from the time of the organization of our first dental college and the publication of our first dental journal up to the time when dentistry had become definitely established as a branch of the Healing Art. It gives the record of the work of that group of men who were the pioneers in the development of dentistry, and whose work and writings should be familiar to all who enter practice in the future.

Many articles published during the period covered by this Index laid the foundation for the development of our progress along almost every line of procedure, and it is doubtful if anyone is justified in preparing a paper today without reviewing some of the articles written during the period covered by this Index, and giving credit to the men of that day. In other words, ths volume of the Index gives opportunity for the teacher and the writer to obtain a proper background for every subject upon which he might lecture or write.

Every dental periodical published in the English language during the thirty-seven years covered by the Index has been reviewed, and all of the articles have been classified. The more important of the journals are now available in dental libraries in all of the larger cities of the Country, and in practically all dental schools. In addition there is being developed an abstract service which will make it possible for a dentist, even though located in the smallest town or the most remote region, to secure abstracts of articles on any subject for a nominal fee.

The Index is published by the Dental Index Bureau under the auspices of the American Institute of Dental Teachers, and is obtainable from the Secretary, Dr. Abram Hoffman, 381 Linwood Avenue, Buffalo, N.Y. It will be sent postage prepaid on receipt of $6.00 to points within the United States and Canada, all other points prepaid $6.50. The Index may also be ordered from Henry Kimpton, 263 High Holborn, London, England.

Editorial

EDITOR:

A. E. Webster, M.D., D.D.S., M.D.S., Toronto, Canada.

ASSOCIATE EDITORS:

Ontario—Carl E. Klotz, L.D.S., St. Catharines.

Quebec—Eudore Debeau, L.D.S., D.D.S., 396 St. Denis Street, Montreal; A. W. Thornton, D.D., L.D.S., McGill University, Montreal.

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A Service to Dominion Dental Journal Subscribers

The Dominion Dental Journal is published by Consolidated Press Limited, Richmond St., Toronto. This organization publishes a number of weekly and monthly magazines, among them Saturday Night. Such a large organization naturally brings them in contact with a great variety of interests. They must of necessity have legal, financial, accounting, investment, insurance and other departments. These and other departments are at the service of the subscribers of the Dominion Dental Journal.

The dentist has had an efficient training in his professional subjects but is often quite lacking in a knowledge of affairs akin or allied to his profession. A good legal opinion at the proper time might often save an inexperienced dentist from much loss of time and money. The Dominion Dental Journal through its legal department is ready to give an opinion pertaining to any subject its subscribers are interested in.

Dentists are notoriously poor investors. They are placed high up on the sucker list by crafty salesmen. Consolidated

Press maintains an investment department which has functioned for years supplying the information which has made Saturday Night a terror to the wrong doer, and a stimulant to good investing. The subscriber to the Dominion Dental Journal gets this information for the asking.

Many times dentists have difficulty in finding out where to get information about business firms or where to buy certain articles. The branch agencies in many parts of the world make it possible to find out almost anything along business lines.

Insurance is a very complicated business which requires an expert to decipher the most economical form for each individual under his circumstances to buy. There isn't anything so disheartening as to have paid on an insurance policy for years and then find out that it is no good after it is too late to get another policy. Fire insurance is no less difficult to understand. Insurance is a necessity for the beginning professional man especially if he has borrowed money for his education or equipment or has dependents. Expert advice on insurance is yours if you want it.

Ask us how to collect a dentist's bill.

It is because the Dominion Dental Journal is published by an organization in touch with nation-wide information that makes it possible for them to easily secure the information they offer to their subscribers.

Editorial Notes

Dr. W. A. Weir, Winnipeg, has accepted a position as Dental Surgeon to the Gallaway Medical Clinic.

Dr. J. A. Bothwell, Toronto, addressed the Hamilton Dental Society on the subject of full dentures, on the evening of November 20, 1923.

Dr. A. D. A. Mason, Toronto, addressed the Peterboro Dental Society on the subject of Dental Etiquette, November 8th, 1923.

YOUNG DENTIST, age 24, now practising in Nova Scotia, would like to move West and associate himself with an older ethical practitioner. Owns complete and latest equipment, and holds D.D.C. Certificate. Apply Box 8, Dominion Dental Journal, 73 Richmond West, Toronto.

FOR SALE—Complete Dental Equipment in old established office. Very cheap, including good will of office. Rent very reasonable. Apply to C. E. Klotz, 84 St. Paul Street, St. Catharines, Ont.

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